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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 395

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No. 395

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POWER OVER DEVELOPERS SEEN NEEDED TO PROTECT ENVIRONMENT

Minister's Address

Wellington THE EVENING POST in English 2 Feb 83 p 14

[Text] DUNEDIN, Feb 1 (PA). — The Commission for the Environment needed teeth if it was to protect the health and safety of New Zealanders, the Minister for the Environment, Dr Shearer, said.

Addressing the 15th Pacific Science Congress at Dunedin, Dr Shearer said it was time to consider seriously whether the commission should ultimately have the statutory power to compel developers to meet basic waste disposal and safety standards.

"The recent failures of small hydro projects and the pollution of Taranaki streams, rivers and coastline by industrial waste are making us think hard about the effectiveness of our own systems of environmental protection."

New Zealand's physical isolation, varied climate and small population had so far spared the country the massive environmental damage done abroad, Dr Shearer said.

However, recent incidents such as the Wheao canal collapse and the effluent pollution from Kapuni would probably have been avoided if the Commission for the Environment's recommendations had been heeded.

"The stakes for the health and safety of New Zealanders are too high for watchdogs with no teeth," Dr Shearer said.

New Zealand might be one of the lucky countries which did not need to sacrifice many more of its environmental assets simply to make a living, Dr Shearer said.

"Development is needed, make no mistake about that. But it is the choice of development which is now important, and here I see scientists having a large influence on the way in which New Zealand grows."

Dr Shearer said he saw much of the country's future development based on small-scale, high-technology industries that used home-grown resources and skills and had a minimum impact on the environment.

Biotechnology and electronics were two such industries.

"I believe that low-impact, high-technology industries may be our only real alternative in a world menaced by ecological disasters and exhaustion of essential raw materials."

"Electronics is still an infant industry in this country, but at present growth rates, I believe it could return New Zealand more than our current boom industry, kiwifruit."

Editorial Comment

Christchurch THE PRESS in English 8 Feb 83 p 18

[Editorial: "A Commission with Teeth"]

[Text] The Minister for the Environment, Dr Shearer, laments the inability of the Commission for the Environment to require that more than perfunctory attention be paid to the audits that it makes of development projects. By law, the commission can recommend changes to a proposed development before work starts; it can suggest that things be done — or not done — to protect the natural surroundings and even the safety of people. Its recommendations are no more than

that. They cannot be enforced. Developers are under no obligation even to read the audit.

Over recent months, the poisoning of the Kapuni stream and the nearby coastline by effluent from the ammonia-urea plant, and the collapse of the canal at the Wheao power scheme, have highlighted the need for an independent commission that will be listened to. In the instance of Wheao, several points deserve repeating. Almost six years ago the commission drew up a list of recommendations aimed at ensuring the general safety of small hydro-electricity schemes. Coincidentally, in its assessment of a report on the environmental impact of the Wheao scheme, the commission sought a system that provided for the design and specifications of such projects to be checked before construction was approved, and sought surveillance by regular checks during and after construction.

None of these recommendations were implemented. It cannot be said with absolute certainty that their adoption would have prevented the collapse; it may be presumed that their adoption would have greatly reduced the chance of collapse. In these circumstances, and under the law as it stands at present, the commission can do no more than utter a rueful "We told you so" when its warnings are ignored, but prove justified. Serious consideration should be given to providing the commission with greater legislative backing. The commission began its work 10 years ago. Since then, it has built up a sound reputation for preparing audits that judiciously balance the environmental,

economic, and social considerations of the projects that it has reviewed.

Dr Shearer has expressed the hope — perhaps one more pious than practical — that the "salutary lessons" of recent events, coupled with the commission's good track record, will encourage developers to take more notice of the commission's views. This is no real answer. If Dr Shearer wants the commission's work to have more than hit-and-miss results — and this would seem implicit in his role as Minister for the Environment — he will have to be more active in getting changes in the law to give the commission real teeth, and spend less time gnashing his own at the impotence he perceives. As the Minister responsible, Dr Shearer is better placed than anyone else to rectify the shortcomings he describes.

The economic times demand that New Zealand press ahead with development. Undue delay from endless reviews, tribunals, and appeals is costly; so too are irretrievable damage to the environment and jobs that go wrong and cost millions of dollars to repair. A balance must be struck. Wheao and Kapuni demonstrate that the commission has a role in the scheme of things. This role cannot be fulfilled as long as the commission's words fall on deaf ears. The best way to achieve the balance might be open to argument. The Government might decide that giving statutory powers to enforce the commission's recommendations would be going too far. If that is so, the Government should look to its own deafness. It also had the benefit of the commission's words on Wheao, but has done nothing in the six years since to give them any effect.

CSO: 5000/9089

# MOTU RIVER CONSERVATION ORDER CALLED 'TOKEN' PROTECTION

## Appeal Planned

Auckland THE NEW ZEALAND HERALD in English 3 Feb 83 p 3

[Text]

**Angry conservationists say they will appeal to the Planning Tribunal against a conservation order protecting only part of the Motu River in the Bay of Plenty.**

They described the order as the Government's "usual token concession" to conservation.

The conservationists backed a call from the Minister for the Environment, Dr Shearer, for an environmental watchdog with "teeth."

The draft order, which awaits the approval of the Minister of Works, Mr Friedlander, would protect about 60 kilometres of the 100-kilometre river.

The order is seen as the first test case of legislation passed in 1981 to protect wild and scenic rivers.

It was applied for by the Queen Elizabeth II National Trust.

The National Water and Soil Conservation Authority approved the order this week.

## Wild and Scenic

The Environmental Defence Society would appeal to the Planning Tribunal and seek protection for the whole river, the society's executive officer, Mr Gary Taylor, said yesterday.

"The Motu is New Zealand's premier wild and scenic river," said Mr Taylor. "If it cannot be protected fully under the new legislation then no river will receive effective protection."

"This is disgraceful and inept on the part of the authority," he said. "If this

is an indication of how the authority will respond to applications (for conservation orders) then every order will have to be appealed."

Mr Taylor said it was clear the Ministry of Works and Development planned to develop the river near its mouth for hydro-electric power.

The limited conservation order underlined the need for an independent environmental body within the Government, he said.

"This (order) clearly demonstrates that the conservation authority, which is serviced by the ministry, is just too close to the people who build the dams."

However, Mr Friedlander — who will visit the

Motu today — said the authority was composed of "people quite remote from the ministry."

The ministry acted as a secretariat to the authority, which was made up of a representative sample of people involved in water conservation and management.

Mr Friedlander said the development side of the ministry had "no undue influence" on the conservation side.

The final decision on the protection of the river lies with Mr Friedlander, whether there is a tribunal hearing or not.

The tribunal would investigate the order and make a recommendation to the minister, which he could accept or decline.

## Qualified Approval

Wellington THE EVENING POST in English 5 Feb 83 p 23

[Text]

Environmental groups are generally pleased with the protection that seems likely to be given to the Motu River, but have their doubts on some aspects.

Most of the river is to be placed under a national water conservation order after a decision this week by the National Water

and Soil Conservation Authority, but this may still be subject to appeals to the Planning Tribunal.

The Motu, in the eastern Bay of Plenty, has been described as New Zealand's best remaining example of a "wild water" river.

The chairman of the Save the Rivers Campaign, Mr Tony Brunt, said he was

pleased with the designation, but it was somewhat contradictory in that an order had been made to prevent dams on the river, yet the authority was still allowing hydro-development investigations to continue.

"We don't really see a need, if the authority is sincere about the river, for these investigations," he said.

Mr Brunt said that although the lower 18km of the river was not included in the conservation designation, it was unlikely that dam-building would be allowed because the tail-water from such a structure would stretch far past the 18km mark.

His group considered the Motu to be a test case, and had put action in respect of

other worthy rivers on hold pending the outcome of the legal issues.

Action for Environment chairman Mr Ron England said the designation was a "belated" recognition of the river's value, but the community still needed to find new ways of looking at the conflict between engineering and environmental issues.

The Motu debate showed that the "real values" of New Zealand could still be endangered by the conflict over how to use resources.

Mr England said more attention needed to be paid to the preservation of rivers, harbours, mountains and other features of national environmental importance.

CSO: 5000/9089

# ENVIRONMENTALISTS DEFER JUDGMENT ON PLANNED GOLD MINE

Wellington THE EVENING POST in English 12 Feb 83 p 7

[Text]

**AUCKLAND, Today (PA).** — The Environmental Defence Society (EDS) says it will not oppose the biggest planned goldmine in New Zealand if the mine's benefits are proved and the environment is protected.

Joint venture partners in the Waihi Gold Company plan to apply for a mining licence later this year. They have been prospecting at Martha Hills, Waihi for several years.

Environmental Defence Society executive officer Mr Gary Taylor, who recently spoke to executives of the American partner Amax in the US, said the companies had engaged consulting engineers to start work on the necessary environmental impact report, which would be submitted with the mining application.

"In Denver I met people responsible for ensuring the proper processing of the application in this country is done with the necessary procedures," said Mr Taylor.

The society has discussed with the companies various approaches it may take with the development.

"We (EDS) may be prepared to see the development proceed, subject to certain conditions, or we might oppose the development outright."

He said the parties agreed it would be impossible to make a decision until the companies confirmed their proposal.

The society hoped to be involved in discussions about the scope of the report. The companies have agreed to show it to the society when it is complete.

The society's geology consultant would be permitted to visit the Waihi project to discuss technical matters, said Mr Taylor.

"I think the value (of discussions with the company) will depend on their response. If they are prepared to be open and straightforward with us, it will benefit all parties.

"It will mean differences of opinion will be identified earlier and efforts made to resolve them before statutory

procedures are started," said Mr Taylor.

The society wanted to assess the environmental consequences of the mining development, he said.

## Kuaotunu

"The difference between Martha Hill and, say, Kuaotunu, Coromandel, where we would never contemplate mining at all, is that the environment does not have the same scenic values as Kuaotunu.

"But there are undoubtedly social impacts at Waihi because of the township."

Mr Taylor said the society would look at what the company would do with mine tailings, what safeguards they would propose to properly contain them, what sort of impact could be expected to the township, and that there would be tangible economic benefits from proceeding with the mine.

## Big hole

"At the moment there is a big hole at Waihi where there used to be a hill.

"The mining itself which is planned is going to be on a scale difficult to grasp in this country. It will be the biggest metal mine in New Zealand," said Mr Taylor.

"EDS is not opposed to mining, but we are concerned with the protection of the environment and the wise use of the country's resources.

"It comes down to an exercise of balancing the benefits the company can demonstrate, which must be dollars into the country, and jobs, against the disadvantages."

Mr Taylor said the society would wait a month before approaching the company again.

Companies with shares in the newly formed but yet-to-be-registered Waihi Gold Company are Amax NZ Ltd (53.4 percent), Mineral Resources Ltd (27 percent), Green and McCahill Ltd (16.6 percent) and New Zealand United Corporation (3 percent).

Mineral Resources in December confirmed the existence of significant gold and silver deposits from test drilling and box sampling at the Waihi site.

REPORT ISSUED ON AMMONIA-UREA PLANT DUMPING INCIDENT

Wellington THE EVENING POST in English 2 Feb 83 p 6

[Text]

The Minister of Energy, Mr Birch, has been assured by Petrocorp that no more unauthorised effluent disposals will be made from the ammonia-urea plant at Kapuni.

Mr Birch released a report yesterday on the incident late last year when ammonia and urea were dumped into the sea near Manaia.

In the report Petrocorp's general manager, Mr Jim Hogg, said the effluent system and procedures had proved inadequate to cope with the volume and type of material that had been discharged during commissioning.

"Both the effluent system and the operating manual are now being reviewed on an urgent basis, in consultation with the Taranaki Catchment Commission," Mr Hogg said.

"Instructions have been issued that there are to be no further unauthorised disposals of effluent from the ammonia-urea plant. This is clear and unequivocal."

## Approval

In future, if discharges cannot be processed within

the water right or district plan, because of exceptional circumstances, then written approval must be obtained both from the relevant authorities and the Petrocorp management before any action can be taken.

Releasing the report, Mr Birch said Petrocorp had carried out a very full investigation into the dumping incident but that information on the alleged damage to marine life had not yet been received from the Taranaki Catchment Commission.

Mr Birch said there had been an unfortunate chain of events leading up to the ammonia-urea discharge.

Excess effluent occurred during commissioning and to avoid any risk of overflow into waterways, as had occurred previously, arrangements were made to take the solution away from the site and spray it on pasture land. It was then considered necessary, partly because of the wet weather and the size of one tanker used, to make disposals into the sea at the Normanby Road site.

"It was at this stage that a misunderstanding occurred," Mr Birch said.

"On December 16, before disposal into the sea started, a plant official had informal discussions with a Taranaki Catchment Commission officer who indicated that if effluent was to be disposed into the sea then the industrial waste disposal site at Normanby Road was to be preferred.

"The Natural Gas Corporation management subsequently authorised the disposal, which took place between December 16 and 20, believing they had Taranaki Catchment Commission approval."

Mr Birch said that as Minister of Energy he would continue to keep a close watch on the situation to ensure such effluent disposals did not occur again.

Later, speaking to the Waitara Rotary Club, Mr Birch said the Government had commissioned a detailed investigation of available effluent options for present and future Taranaki energy projects.

Mr Birch said the Waitara engineering consultant, Mr R W Morris, had been appointed to prepare a report, expected in April.

# TOXIC CHEMICAL WASTES LEAKING FROM UNDERGROUND DUMP

Regarded as Dangerous

Christchurch THE PRESS in English 22 Feb 83 p 6

[Text]

PA New Plymouth  
Toxic chemical wastes, including herbicides, have been leaking from an underground dump on the Waireka research farm of Ivan Watkins-Dow, Ltd, at Omata, near New Plymouth.

The company's research manager, Mr Bob Moffat, said yesterday that the pollution was small and minor — "but like all these things, just a little too much."

However, the Health Department and the Taranaki Catchment Commission regard the wastes as dangerous. The commission's manager, Mr John Douglas, has warned the public to keep away from the area.

Officials said that the leakage discovered on Saturday by a neighbouring farmer, had been trickling chemical wastes at a rate of about 400 litres a week on to the foreshore.

Mr Moffat said that only a very small percentage of the 400 litres a week which had been seeping out was the highly toxic phenoxy herbicide. The polluted area measured about 5m by 2m.

"We have been measuring the area for about a month to find out what is there. All our tests indicate that there is no hazard to people walking in the area."

An Omata resident, Mrs Bea Purvis, first brought the problem to the attention of authorities. A thorough investigation was made by the company, the Taranaki Catchment Commission, and the Health Department yesterday.

The "Taranaki Daily News" reported last evening that pools of stinking chemical waste were found below the high tide mark at the foot of a cliff below the I.W.D. research farm with vegetation and sea life killed off in the area.

Ivon Watkins-Dow has accepted responsibility for the pollution and Mr Moffat said that dealing with it was the company's top priority.

The chemical waste is leaking from some of 200 containers buried on the site in 1975, each holding 200 litres of chemical.

The "Daily News" said it believed that the containers held a range of plant wastes from the type of chemicals I.W.D. was producing at the time.

## No Plans To Open Dump

Christchurch THE PRESS in English 23 Feb 83 p 6

[Text]

PA New Plymouth  
Ivon Watkins-Dow is not planning to open up an old chemical dump in its Waireka research farm, in spite of the leaking of dangerous chemicals into the sea at Omata this week.

Opening up the dump has been urged by the Taranaki Catchment Commission, one of the authorities concerned about the chemical seepage.

Ivon Watkins-Dow's research manager, Mr Robert Moffat, said yesterday that the chemicals had a low level of toxicity and the company had no plans to open up the dump.

The drums containing the chemicals were crushed and then burnt before being buried on the farm, Mr Moffat said.

About 400 litres of chemicals a week have been leaking into the sea from the cliff below the dump site, killing off vegetation and marine life.

Mr Moffat said the company planned to dig exploratory trenches at the dump rather than open it up.

Unless there was somewhere to put the waste, opening up the dump could cause a potentially bigger problem.

"The key is to retain the seepage and that is being done," he said.

It appears that there were about 170 drums, each holding 200 litres of chemical, dumped in two separate sites at Omata in 1975.

Mr Moffat said that most of the dumped chemicals were either phenoxy products, including MCPA, 240, and 2,4,5-T, all common weedkillers, or detergent-based chemicals which were biodegradable.

Some of the weedkillers, however, are known to contain deadly dioxins.

A Health Department principal inspector, Mr Barry

Archer, said that since the department had become involved, the company had adopted a responsible attitude.

Mr Archer believed the likelihood now of the wastes

getting into seafood resources was remote.

The department had collected its own samples at the site but so far had not sent them for analysis.

"We have asked the company to give us some record

of what is in there and when we have received that information we will make our own assessment," said Mr Archer.

The manager of the Taranaki Catchment Commission, Mr John Douglas,

was adamant that the dump would be opened.

"The waste has got to come out, the sooner the better. I am prepared to give the company a little leeway on this, but not much," he said.

### Dioxin Said Not Present

Wellington THE EVENING POST in English 4 Mar 83 p 7

[Text]

**Monitoring of the chemical seepage at Ivon Watkins-Dow's research station near New Plymouth has failed to detect the presence of dioxin, says a company statement.**

A company chemicals dump at Waireka had been leaking wastes on to the foreshore at Omata.

The firm's statement said it was using a sophisticated analytical procedure to examine the contents of the liquid seeping from the dump.

Research manager Mr Bob Moffat said the analytical techniques were capable of detecting minute amounts of chemicals. Despite this, nothing had been found.

Analysis showed that only a very low level of phenoxy herbicides and chlorephenols were present in the liquid.

"The liquid escaping from the dump is about 10,000 times weaker than herbicides which the public can buy in shops. It's not presenting any environmental problems and not posing any health hazards," Mr Moffat said.

Although the amount of material seeping from the dump was relatively small, IW-D had built a trench to capture it and remove it for disposal.

"The system is working extremely satisfactorily and we are collecting all liquid escaping from the cliff face before it reaches the foreshore.

"A marine survey of the foreshore has been conducted by the Taranaki Catchment Commission and they conclude that only a little localised damage has been done.

The company says this conclusion supports our scientific analysis that there is no danger to the environment or health.

"The minimal amount of damage which has been done would be expected under the circumstances," he said.

A consultant geologist is preparing a detailed geological survey of the area around the dump site.

The report, which will provide a basis for discussion between all parties on possible solutions to the problem, should be completed in about a month, the statement said.

CSO: 5000/9089



UN TO SET UP MARINE POLLUTION CONTROL CENTER IN DAVAO

Manila BULLETIN TODAY in English 26 Mar 83 p 23

[Article by Pal L. Ravina]

[Text] Two agencies of the United Nations, in cooperation with the sub-committee on shipping and ports of the ASSociation of Southeast Asian Nations (Asean), are setting up a marine pollution (MARPOL) control center in Davao.

Capt. Victorino Basco, administrator of the Maritime Industry Authority (Marina), said the center, the first to be established in the Pacific, will be funded by the United Nations Development Program (UNDP) and will be implemented by the International Maritime Organization (IMO). Cost of the project is about \$450,000, he said.

Mechanics of the center, whose main thrust is to combat marine pollution in the Pacific region, were finally agreed upon at the recently concluded 6th meeting of the Asean sub-committees on shipping and ports held at the Hyatt Regency when the delegates of Indonesia and Malaysia gave their concurrence to the establishment of the project.

Also participating in the project are the Federation of Asean Shipowners Association (FASA), Federation of Asean Shipowners Council (FASC) and the Southeast Asian Trade Action Committee (SEATAC), the Marina, the Philippine Ports Authority (PPA) and the Philippine Coast Guard (PCG) as the implementing local government agency.

Basco said the establishment of the marine pollution control center was discussed in previous meetings of the Asean subcommittees on shipping and ports.

Marine pollution is one of the international conventions of the IMO, an agency of the United Nations. Its major objective is to protect environmental pollution, particularly pollution of the high seas, including rivers and lakes and other bodies of water through prevention dumping of oil waste products by ships and other watercrafts.

CSO: 5000/4324

# PASIG RIVER FOUND HEAVILY POLLUTED

Manila BULLETIN TODAY in English 26 Mar 83 pp 1, 5

[Text]

Aquatic life such as fish, shrimps, and other lower forms of life may not be able to subsist in the Pasig river's polluted waters.

Commissioner Guillermo A. Pecache, of the National Pollution Control Commission (NPCC), said

yesterday that the dissolved oxygen content of the amount of oxygen available for the respiration of aerobic marine life is below standard.

The depletion of oxygen was attributed to the summer season when rivers have low water discharge, Pecache said.

However, the tidal current inflow into the Pasig river helps to dilute the treated and untreated industrial and domestic wastes dumped into the rivers but also hinders the complete flushing of the river, resulting in the entrapment of organic pollutants, he said.

NPCC records show that the mean dissolved oxygen content of the Pasig river is 3.84 parts per meter (ppm) this year, which is lower than the standard five milligrams per liter but slightly higher than the content in 1981.

For the first quarter of 1983, the amount of ox-

ygen in the Pasig, Marikina, and San Juan rivers showed a notable decline.

The mean dissolved oxygen content for Marikina river ranged from 9.8 ppm in Montalban to 1.5 ppm in Vargas; San Juan river from 5.7 ppm in Tandang Sora to 0 ppm in Sanchez bridge in Mandaluyong; and for Pasig from 5.2 ppm in Bambang to 0 ppm in Del Pan Bridge.

Of the three rivers, the San Juan river was found to be highly polluted. The amount of biochemical oxygen demand (BOD) or the amount of oxygen-consuming organic pollutants in the San Juan river water and the dissolved oxygen content were generally below standard.

Pecache noted that the inflow of the San Juan river into the Pasig river in Hagdang Bato, Sta. Ana contributed to the deterioration of the water quality.

The presence of esteros on the lower portion of the river and the absence of an adequate sewerage system to handle domestic waste water also contribute to the Pasig's pollution problem.

## CZECHOSLOVAKIA

### IMPACT OF INDUSTRIAL POLLUTION IN NORTH BOHEMIA

Zurich NEUE ZUERCHER ZEITUNG in German 27/28 Feb 83 p 4

[Article entitled: "Environmental Pollution in Eastern Europe: Northern Bohemia a Sad Example"]

[Text] Vienna, 24 February--According to the testimony of Czech scientists the water in the Vltava at Prague is so polluted that it cannot be purified. Some inhabitants of the Slovakian capital of Bratislava are already said to be using mineral water to brush their teeth. The biotope of almost one third of the entire 25000 km of all the rivers in Bohemia, Moravia and Slovakia has been destroyed. According to the eyewitness account of a German environmentalist, 170,000 hectares of forest (equivalent to the area of the Canton of Zurich) are practically dead. The forest is, for the most part, the victim of unfiltered or insufficiently filtered sulfur dioxide from brown coal power plants and hydrogenation plants. The writer Ota Filip reports that the mountain people of the Northern Bohemian coal district are being taken in buses once a week to fresh air where they can breathe deeply for a couple of hours under medical supervision. On the other hand it is prohibited for men and women who are able to work and who live in Northern Bohemia, to leave the district to seek employment elsewhere.

#### Exploitation of Nature

Whoever travels in Eastern Europe outside the purely tourist routes, cannot escape noticing how radically nature is being exploited. Until the late 1970's it seemed that the communist planned economies gave only marginal consideration to the environmental impact of factory installations, land clearing projects, etc., and that environmental considerations were not taken into account at all in connection with the quality of housing. As a citizen of a "capitalist" country, one hesitates to pass judgment on this phenomenon in view of the situation in the West which is by no means exemplary. Moreover there is a general absence of reliable data on environmental pollution. The statement of a representative of the Hungarian Environmental Protection Council can, however, be taken as an admission of the inadequacy of preventive measures taken up to now. In principle, he said, the socialist countries were more concerned with human environmental conditions but had to be able to compete in the open market with their products and prices. Therefore ideal conditions could not be established.

Unlike other cases the emissions from coal mining and its dependent industries in northern Bohemia have become an international problem. The previous Bonn government had already made its concern on the damage to German forests known. At the end of January, shortly before the Prague trip of Foreign Minister Genscher, the Bavarian minister president, Franz Josef Strauss, complained in a letter to the Czech ambassador in Bonn that the emissions of sulfur dioxide and other poisonous substances had become so strong that the forests in the northern Bavarian border region were in great danger. He proposed an East-West ecological dialogue in which the GDR should also be included. To the credit of the Prague leadership it must be said that during Foreign Minister Genscher's visit they were receptive to conducting such talks through diplomatic channels. According to a report of the FINANCIAL TIMES the construction of desulfurization installations has already been promised. For their part the Prague Government also sees in this a good opportunity to draw attention to the pollutants brought from West Germany to Czechoslovakia when the wind is out of the west.

#### Steppe Landscape in the Erzgebirge

Northern Bohemia is one of the areas in Europe with the greatest air pollution anywhere. The sulfur content of the brown coal mined there and in the Cheb Valley is close to double the normal. According to a report of the German Press Agency the sulfuric fumes are said to leave the power plants unfiltered. (In Prague, with over a million people, which is mainly heated with brown coal, the  $\text{SO}_2$  content of the air in winter is close to  $0.17 \text{ mg/m}^3$  and is therefore three times higher than the maximum established by the WHO.) According to the account of a German forester the Erzgebirge today looks like a steppe landscape; the spruce trees covering square kilometers have no more needles, their branches are bare. The dying out of the trees is said to have begun about 15 years ago, over the past five years whole forests are dying. Only matgrass and Waldreitgras [translation unknown] can still survive. Attempts by Czech foresters to reforest the area with more resistant blue spruce have apparently failed. The situation seems irreparable. The forest can no longer store water. Hardly any potatoes or rye will grow any more in neighboring fields; the well water is not potable.

Compared to these terrible scenes the forest in eastern Bavaria is designated as sick, to be sure, but still alive; with the necessary effort it still seems to be capable of being saved. Measures are, however, necessary even in the Federal Republic, since eastern Bavaria is also exposed to the emissions from the Ruhr.

How serious the problem of air pollution in Czechoslovakia has become is shown by the numerous recent reports in the official press. Last autumn the news agency CTK reported that the atmosphere in Bratislava is contaminated with 100,000 tons of pollutant a year of which over 60,000 tons is sulfur dioxide. Construction has begun on a desulfurization installation in the meantime.

## Defenseless Population

Unlike the democratic states of Western Europe the citizens of the peoples' democracies are obliged to accept environmental burdens more or less defenselessly. Protests, however moderately phrased, are perforce protests against the provisions of the Plan and therefore against economic policy. In the end they touch on the leadership role of the party. It was no accident that one of the first movements which took up environmental questions was the Czech civil rights workers of Charter 77. They realized that a larger circle of people could be addressed with these problems than by concentrating on intellectual freedoms. Up to now they have had hardly any direct effect but the population has become so sensitized that even the leaders can no longer totally suppress the problems. However, the economic difficulties of all COMECON countries will not permit any diversion from quantitative production thinking in the near future. Environmental protection, as the Hungarian functionary mentioned above has already said, is generally regarded as an exercise for the rich.

9827

CSO: 5000/3012

CCA WELCOMES SIGNING OF CARTAGENA TREATY

FL301630 Bridgetown CANA in English 1609 GMT 30 Mar 83

[Text] Bridgetown, Barbados, March 30, CANA -- The Barbados-based Caribbean Conservation Association (CCA) has welcomed the recent signing by several Caribbean and Latin American states of a convention making provision for better management of regional natural resources. Those signing the Cartagena Treaty on March 24 were Colombia, France (for its Caribbean island departments) Grenada, Honduras, Jamaica, Mexico, the Netherlands, Nicaragua, Panama, St Lucia, the United Kingdom, on behalf of its remaining colonies and associated states in the region, the United States, Venezuela and the European Economic Community. The convention will remain open for signature for one year in Bogota and most of the 27 countries participating in the action plan are expected to sign.

The agreement achieved with the acceptance of the convention, and the protocol concerning cooperation in the combatting of oil spills, represents an important step forward in the implementation of the Caribbean Action Plan -- accepted by the governments of the wider Caribbean at Montego Bay in April 1981 -- even though there have been delays over the carrying out of priority projects owing to non-payment by certain governments of their promised contributions, the CCA said in a statement.

It added however that several top priority projects are in the process of implementation including one on environmental education and public awareness being carried out by the Caribbean Conservation Association, and these priorities were approved by the inter-governmental meeting which followed the signing of the convention.

Additional priority was also allocated to projects concerning tourism and the environment and the establishment of protected areas for the preservations both terrestrial and marine wildlife. The latter is of particular relevance to CCA on account of the work in this fielf being carried out by its Eastern Caribbean Natural Area Management Programme (ECNAMP), the CCA said.

This month's meetings in Cartagena were attended by the president and executive director of CCA which, as the only Caribbean regional non-governmental organisation concerned with environmental matters, plays a significant role in the Caribbean Action Plan.

CSO: 5000/2022

BRIEFS

BEACH EROSION ACTIONS--Government is planning for a comprehensive study of the erosion problem on the beaches of the island. An estimated \$1 million is being provided for the beach protection study in the 1983-84 Estimates which are to be debated in the House of Assembly next week. The estimated cost of the project is \$1.2 million, part of which is reimbursable under the Loan Agreement signed with the I.A.D.B. (Inter-American Development Bank). Provision is also included in the Estimates for the administrative costs of the project, as well as remedial works to be carried out on the beaches, as the need arises. In the Estimates for the Ministry of Housing and Lands, Government is also making provision for the purchase of two prefabricated units from the National Housing Corporation for the Barbados Agricultural Development Corporation (BADC). Provision is also being made to account for the disbursement of C.I.D.A loan funds in respect of a 1982 loan agreement between the Governments of Barbados and Canada for the Land Mapping and Registry Project. The goal of the project is to include the effectiveness of land use throughout Barbados. The purpose is also to provide a Land Mapping and Registry Project. [Bridge-town ADVOCATE-NEWS in English 9 Mar 83 p 1]

CSO: 5000/7558

GROUP LOBBYING FOR OPEN SPACES RAPS GOVERNMENT INACTION

Hamilton THE ROYAL GAZETTE in English 11 Mar 83 p 2

[Text]

Government has taken insufficient steps to protect open land, the Save Open Spaces group claimed yesterday.

SOS argued that the current plight of Bermuda's seemingly doomed dairy industry highlighted the point.

The environmental group declared its support for a petition farmers intend to distribute next week seeking community support for the threatened milk industry and the preservation of arable land.

SOS spokesman Mr. Stuart Hayward said in a Press statement: "The need for positive action has been emphasised by the possible overnight de-

mise of the bulk of locally produced milk through subdivision of the land and eviction of the dairy farmers.

"Government policy on open spaces has been responsible for this disastrous state of affairs."

The SOS group called for new Agriculture Minister the Hon. Quinton Edness to clarify the status of Government's promised land use policy.

"One year ago, SOS began a campaign to preserve open spaces which resulted in Government imposing a moratorium on land subdivision," Mr. Hayward went on.

"Such a moratorium was necessary to provide

Government with the time needed to study and formulate a comprehensive land use policy. Unfortunately, the moratorium is not airtight and the land use policy seems a long way off," he said.

Mr. Hayward pointed out that Premier the Hon. John Swan had asked people in his election appeals to get involved.

"We wholeheartedly support the thrust for the farmers' petition and sincerely hope that Premier Swan and his Ministers will be receptive and responsive to this public expression of community involvement," Mr. Hayward concluded.

CSO: 5000/7557



GOVERNMENT VOICES SUPPORT FOR OPEN SPACES, ARABLE LAND

Hamilton THE ROYAL GAZETTE in English 28 Mar 83 pp 1, 5

[Text]

The Hon. Quinton Edness, Minister of Works, Housing, Agriculture and Fisheries, threw his weight behind the environmentalists and called for the preservation of open spaces and arable land. Speaking at the Jaycees Outstanding Persons Award at the Bermudiana Hotel on Saturday, Mr. Edness promised that Government would ensure the protection of arable land from development.

The Minister did not spell out how Government intended to protect arable land, saying only: "It could be an expensive proposition, but it is a necessity."

But he added that proposals for arable land protection would be contained in a revision of the 1974 Development Plan, expected to go to Parliament before the end of May.

It was the obligation of every country, no matter how small, to produce as much food as possible within the framework of a realistic development plan.

Of the 800 acres of remaining arable land in Bermuda, 500 were currently being farmed, most with vegetable crops.

"However, some 20 percent of those 500 acres cannot be caught and protected by the New Planning Act by virtue of the fact that they

have a legal sub-division or some other form of development right on them."

He continued: "Presently, it is estimated that about 25 percent of our local fresh produce needs to be imported. It should be possible to increase that figure to 60 percent with proper planning and providing, of course, the necessary land base is conserved."

"Government will make Bermudians more self-sufficient."

"Food production, if increased, can mean that we will be able to give up canned food, with its chemicals, and other artificial preservatives."

Mr. Edness also called on farmers to use new techniques of farming that bring higher yields.

"New techniques are available and we need to

bring them to Bermuda," he said. "Improved technology in food production has increased tremendously the food production of food-producing nations, and it is

more valuable than the food itself, is the knowledge of how to produce it."

The time had come for Bermuda to give serious thought to applying some of this new expertise.

"I am happy to note that already we are witnessing a rising interest in specialised farming techniques, such as hydroponics or soil-less culture in Bermuda."

"This method is especially suited to the production of green vegetables, tomatoes and other salad crops and yields of three to five times those obtained from conventional farming are not uncommon."

CSO: 5000/7561

## NEW REGULATIONS ON NATURE PARKS, RESERVES OFFERED

Hamilton THE ROYAL GAZETTE in English 26 Mar 83 p 2

[Text] Government is to create a national park system and is presently drawing up a national parks act, Senator Llewellyn Peniston said in the Senate on Wednesday.

A new act would be drawn up dealing specifically with regulations surrounding the Island's nature parks and reserves.

"It is the intention of the department upon completion of the open space survey to bring forward specific legislation on parks which would establish a national park programme and give it the long term protection it deserves," he said.

Speaking during debate on budget estimates, he said one of the biggest challenges facing the Department of Agriculture and Fisheries today is finding a way to preserve open and arable land.

"I think Government needs all the help it can receive in terms of coming to grips with a solution which will bring about a solution and which will preserve this vital industry (farming and fishing)."

He said: "We have had representations from dirt farmers and livestock farmers and we have to try to balance their representations to preserve open space in the face of acute land development projects that

have been coming before us from time to time."

Government's moratorium on sub-division of open land had given the Departments of Agriculture and Fisheries and Planning opportunity to come up with a complete inventory of remaining open space.

The department was also attempting to identify ways of protecting what remains of Bermuda's fish stocks.

Although any proposals were bound to cause dissent, Senator Peniston said it should be recognised that without controls fishermen would continue to fish "until the last fish is caught and then we will hear anguished cries from fishermen saying 'There's nothing left to catch'."

Senator David Allen, PLP, warned that if arable land continued to be chipped away Bermuda would be unable to produce enough food to survive in a time of emergency.

"The bottom line has already been reached, that is clear," he said.

"We in the Opposition support the farmers' efforts

to save the last remnants of farming land in this community."

The new Minister of Public Works, Agriculture and Fisheries, the Hon. Quinton Edness, had displayed a "schizoid" mentality recent-

ly when on the one hand he had said that The Pampas must be preserved, and on the other hand said the development rights belonged to the owners of the property.

Government should buy open tracts of arable land, he said. Compensation was a small price to pay in the long run.

"It would be tragic if Bermudian children were to grow up never knowing what a real farm looks like or what vegetables look like in their natural state or even what a dairy cow looks like in its natural state," he said.

Government should make more inroads in introducing modern farming technology to the Island, he continued.

The Opposition regretted that the Southlands property had fallen into private hands and hoped that Government would buy the Watson property.

Senator Paul Leseur, UBP, said there were nine golf courses which could be ploughed in the event of emergency.

The Department of Agriculture had been very helpful in promoting the use of modern technology.

Senator Peniston replied that Government was still holding "exploratory" talks with the owners of the Watson land and was doing all it could to purchase it on satisfactory terms.

## FARMERS ATTACK GOVERNMENT PLANS TO CO-OPT DAIRY INDUSTRY LAND

Hamilton THE ROYAL GAZETTE in English 18 Mar 83 p 1

[Text]

Government is poised to step in and save the Island's threatened milk industry before dairy farmer Mr. Harry Kromer is evicted from his Pampas, Smith's Parish farm.

News of the eleventh-hour development came following a public meeting held last night at a packed Whitney Institute auditorium.

"I would hope that because of what Government is attempting to do, and God-willing, Harry Kromer will not have to destroy his herd of cattle," said the Hon. Quinton Edness, Minister of Agriculture, following the meeting.

Mr. Edness would not reveal the nature of the Government's plan. He said: "If we are successful, the actions will speak for themselves."

The meeting, attended by several hundred people, was part of a publicity campaign launched by Bermuda farmers to highlight the Island's growing land use problems.

Farmers also announced a petition seeking support for the preservation of open space and arable land.

Dairy farmer Mr. Kromer has been given until May 11 to get his herd of 135 cattle off the Pampas land. If he cannot find suitable land to relocate the herd, which produces 75 percent of the Island's fresh milk, the cattle will be destroyed.

"There is only one way out," said farmers spokesman Mr. Richard DeMoura to thunderous applause. "Government will have to step in and acquire a farm to house these cattle."

Premier the Hon. John Swan said Government was concerned over the situation, but added it had many other responsibilities as well.

That brought an angry retort from National Trust Environmental Committee chairman Mr. Alan Dunch: "Forget the rhetoric — what the hell is Government going to do."

But for the first time since the plight of Mr. Kromer came to light there was an indication Government was taking steps to help out.

"Mr. Edness has put proposals on my desk," said Mr. Swan, adding, "Every other Minister is asking for money. That's a hint. That's a hint. We are not removed from the reality of the situation."

Mr. Edness confirmed that he had put proposals to Mr. Swan, and reiterated his support for the continuation of Bermuda's milk industry.

"I feel that the dairy industry is worth saving for many reasons," said Mr. Edness. "I am doing nothing else but looking at proposals to help the dairy farmers, dirt farmers, and the fishermen."

CSO: 5000/7557

## PLAN TO INCREASE FINES FOR SOOT POLLUTION BY SHIPS

Hamilton THE ROYAL GAZETTE in English 11 Mar 83 p 3

[Text]

Ships found responsible for soot pollution could face a whopping \$10,000 fine under amendments tabled in the House of Assembly on Wednesday yesterday.

The Marine Board Amendment Act 1983 seeks to increase the penalty for soot emission from \$480 to a maximum of \$10,000.

The Hon. William McPhee, Minister of Marine, said the move was designed to make penalties for soot pollution "more meaningful".

"I feel that this will act as a more effective deterrent and should encourage vigilance on behalf of ships and their crews," Mr. McPhee said.

The amendment is another bid to tackle the problem of soot emission from cruise ships which has hung over Hamilton and St. George's for years now.

Last year brought another barrage of complaints about pollution from cruise liners tied up in port during the summer season.

Mr. McPhee said offenders were taken to court on occasion but the \$480

penalty barely acted as a deterrent in today's monetary climate.

"I am responsible as the Minister to ensure that Bermuda is not polluted by these ships, especially when you consider, for example, the amount of money the Corporation of Hamilton has put in to beautifying Front Street," Mr. McPhee said.

The Minister said that although the issue had been a problem for years, complaints of soot emission increased significantly since 1974.

There had been far fewer complaints about motor vessels, Mr. McPhee said. "I am not sure how many, but there have been hundreds of complaints about smoke pollution. We saw many in St. George's last year," Mr. McPhee said.

He said the sizeable increase in possible penalties had not come about because cruise liners and their agents were failing to do as much as possible to cut down on the problem.

"Last year we worked with the cruise ships and their captains and we had a marine surveyor going aboard each week," Mr.

McPhee said. "I met with captains and agents at the beginning of the season."

He said the increased penalty was necessary because the present figure — which is double what the fine was in 1981 — could not be regarded as an effective deterrent.

The Minister pointed out that a \$10,000 fine would not be mandatory. It would be for the courts to set the penalty. The Act allowed for a fine "not exceeding \$10,000".

"We do not want to prosecute cruise ships because in many ways they are our life's blood," Mr. McPhee went on. "They bring a lot of visitors to Bermuda. But we have to protect Bermuda from pollution."

The Minister thought the most viable long-term answer might be for Government to encourage the replacement of steam ships with motor ships.

In the meantime, the new penalties, if approved by Parliament, could be in force within two months' time.

ENVIRONMENTAL AFFAIRS AGENCY SET UP

Cairo AL-AHRAM AL-IQTISADI in Arabic No 732, 24 Jan 83 p 5

/Text/ Governmental Decree No 631 of 1982, which establishes an environmental affairs agency under the charge of the Council of Ministers, has just been issued. The goal of this decision is to establish a link between the leadership of the Council of Ministers and the various ministries and organizations involved in environmental protection.

As stipulated in the decision, the agency will be responsible for studying and preparing subjects pertaining to protection of the environment which are submitted to the Higher Policies Committee or to the Committee for Environmental Affairs. It will also be responsible for monitoring the approved programs and plans, preparing the draft of the national plan for environmental studies, and proposing the priorities for implementation of the plan, which will be approved by the Higher Policies Committee. The new agency will notify concerned agencies of the necessary directives and information with regard to implementation of the national plan for the protection of the environment and the environmental studies and it will monitor the measures and plans adopted by these agencies to implement this plan. The agency will be responsible for studying environmental legislation in the developed nations, preparing draft environmental legislation based on legislation in other countries that is appropriate for the Egyptian environment, and studying and analyzing proposals connected with environmental affairs submitted by specialized scientific agencies in the field of environmental affairs. The agency will also study and propose standards, specifications, and conditions that should be met and observed to protect the citizens and workers from the dangers of environmental pollution.

In the exercise of its responsibilities, the committee will have the right to seek information from individuals who have scientific expertise related to the work of the agencies.

8591

CSO: 5000/4606

## PROBLEMS POSED BY UNDERWATER PLANTS IN WATERWAYS REVIEWED

Cairo AL-AHRAM AL-IQTISADI in Arabic No 739, 14 Mar 83 pp 14-16

[Article by Nu'man al-Zayyati: "The Million-Dollar Weeds!"]

[Text] A serious problem has recently exploded on the tranquil surface of the water of the Nile that threatens to deprive Egypt of tremendous amounts of Nile water. The problem is the Nile rose plant which has spread like a cancer through many of the drainage ditches and canals in Lower Egypt and central Egypt, covering surface areas of water with a thick layer of vegetation. The danger is embodied in the fact that Egypt is deprived of about 3.4 billion cubic meters of water because of the Nile vegetation. In addition, the spread of the Nile rose will lead to a rise in water levels in the public drainage ditches and the spread of the plant into private ones, threatening farmland with ruin. The peasants' complaints about the failure of water to reach the ends of canals have increased, and this has led to the disbursement of compensation for water. To be aware of the extent of the gravity of the problem, it is enough to point out that every year we consume 59.2 billion cubic meters of available water resources, which are estimated at about 60.7 billion cubic meters, that Egypt's share from the Jonglei Canal project will be about 2 billion cubic meters, that Egypt's share from the water resource development projects in the upper Nile in the future is estimated at about 7 billion cubic [meters], and that the total water resources available by 2000 are estimated at about 79.4 billion cubic meters.

If we draw closer to the picture, in order to learn its details more accurately, it will be necessary to become acquainted with other countries' experiences with this danger.

The Nile rose is considered to be one of the most dangerous catastrophes to afflict the freshwater surfaces of the rivers, the watercourses in the form of canals and drainage ditches of all levels, and natural and manmade lakes - to the point where it has become notorious as "the worst weed in the world" or "the million-dollar weed."

The popular names that have been given this plant in countries that it has invaded have started to bear witness to the bitterness with which it is regarded. In Senegal they call it the "blue devil" and in Bangladesh they call it "the German plant," comparing its spread there to World War One. Indeed they still believe today that its introduction into the Indian Subcontinent was a war

scheme on the part of Sri Lanka, called "the Japanese plague," in the belief that the British spread it under the surface of the water in World War Two to deceive the expected Japanese invasion forces so that they would land their planes on the green surface, which would cause them to go under.

In Egypt, this plant is called, besides the Nile rose, the water hyacinth, and some other local names, such as "al-Juray" in the area of Lake Idku, northern al-Buhayrah Governorate, and the area around Dumyat and Faqqus.

The number of seeds that a single plant can produce ranges from several to 5,000. It has been estimated that a feddan of Nile roses of average size can produce 25 million seeds, and the reports that have been issued in recent years on the extensive spread of the seeds by water birds or birds living on the shores raise a dangerous possibility that had not previously been taken seriously, which is that migrant birds can carry the seeds several thousand kilometers during a single season, helping to spread them about over all areas of the world.

### Blocking Navigation

The spread of the Nile rose on the Nile River and on canals and drainage ditches has had harmful effects on navigation. It is well known that the Nile is one of the main cheap transportation routes, and therefore negligence in eliminating the Nile roses in it has caused obstructions for boats and lighters that find it difficult to go through them.

One boat owner said "The Nile rose has caused many homes to be shut down because of our dependence on boats in order to earn our livelihood; because of the invasion of the river by the Nile rose, it has become difficult to operate these boats. The Nile rose intertwines with the blades of the propellers of the launches and tugs, and beds of it pile up in front of canal locks. In fact, some weirs of some canals have become blocked up and this has slowed down the movement of boats or stopped them and has brought grievous losses upon them, increasing monetary losses. In fact, the River Transport Department is losing more than 1 million pounds a year on extra maintenance activities, spare parts and fuel consumption!"

### Threats to Fish Resources

One boat owner relates how the Nile rose threatens fish resources, stating, "The fish are not only an important element in the food of the citizens who live alongside the rivers and on the shores of lakes; rather, because of the rise in the prices of meat, and its scarcity in some towns and villages, fish has acquired increasing importance in feeding the population of many villages. The density of the Nile rose limits the water surface available for fishing and inhibits fishermen from bringing their boats to the desirable fishing areas and from casting their nets. We in the areas of Fuwwah, Matubas and Dassuq rely on nets and rods, and therefore it is impossible today for us to engage in fishing in the midst of these great masses of Nile rose!"

### Shutdowns in the Water Pump Plants

The pileup of masses of Nile roses in suction channels before the irrigation, drainage, drinking water and hydroelectric generating plants causes them to shut

down lot, and creates problems for people who operate them. It is necessary to remove the masses in stages, and this runs into expenses that increase operating costs.

The people of Fuwah add that the masses of Nile roses create an environment that is suitable for fresh water snails to flourish, and therefore we find that bilharzia has spread of late and collections of bugs and gnats have increased!

#### Containing the Problem

Eng Jean Kamil, deputy minister of irrigation, says, "The Ministry of Irrigation has hastened, with all its powers, expertise and resources, to confront this imminent danger and has set out a firm plan which is committed to decisive, effective, organized measures to eliminate this dangerous plant as quickly as possible, without delay. It has set its attention on two basic goals:

"1. Confining attacks to the areas where they appear and preventing the plants from infiltrating from the areas in which they are present into clean areas.

"2. Rapidly and carefully carrying out resistance campaigns by applying mechanical, manual and chemical methods whose success has been proved in an integrated manner, with the maximum capability of resources.

"Then we have set out a plan which is based on chemical resistance by spraying the masses of Nile roses that have piled up on the sides and in the branches of the Nile, around the roots and in inlets, from three launches, each of which is equipped with two sprinkling machines from north to south.

"Following chemical resistance there is mechanical resistance, where teams equipped with feluccas and spikes are put in front of all the barriers in front of the bridges and barrages over the Nile and its branches and take the refuse from them; these are in charge of removing what is accumulated in front of the barriers in stages and taking it on land, where it is piled up and burned."

Eng Jean Kamil adds, "Salt water kills the Nile rose in a short time and it is therefore easy to get rid of it by letting it out to the sea from the canal locks. However, if the amount is thick, it becomes intertwined with the boats present and in that case it is possible to clean out the watercourses that have been attacked with the (al-Nasilah), (Sahhar), (Abu Bis), (al-Ghab) and papyrus plants that the Nile rose plants can be concealed within. The kafr al-Shaykh are is one of the areas that are most congested with this weed, because it is an area where rivers and watercourses end. Therefore the drainage ditches are periodically sprayed with pesticides. In addition, the filling in of ponds and marshes is essential and results in the destruction of the Nile rose breeding beds, eliminating them at the source. In addition, the cleansing of the waterwheels and their special drains is of equal importance. This is the main sanitation campaign that is carried out. After that, there is periodic inspection once every 2 weeks; then, once every month, small groups of workers go out under the leadership of a capable 'boss' to pick up all isolated plants the initial campaign might have missed. They continue their mission until they are completely finished with the cleanup process. In the event the Nile roses are



dense, manual resistance cannot be used to eliminate the Nile roses in the lakes because of the difficulty of providing the necessary number of workers to perform this job in an effective manner that will outstrip the rate of reproduction of the plant. In addition, there is the long time that the execution requires and the distances for hauling the material produced by the massive amounts eliminated from the areas afflicted to the shores, and so forth, which make this measure impossible in the practical sense.

"Likewise, mechanical resistance requires a large number of pieces of machinery and means for supplying them with fuel and trained technical labor, which raises costs to an abnormal level. Therefore sailplanes are used to spray the infested water surface areas, and we have done this in Lakes Idku and Maryut, which have been sprayed with chemicals."

#### The High Costs of Cleaning out the Bottoms of Canals and Drainage Ditches

Eng Jean Kamil went on, "The Nile rose problem has become one of the serious problems facing many countries in the world, and studies here have shown that the costs of establishing a project to store water in the upper weirs of the Nile, to store a billion cubic meters a year in Aswan, will require capital of 100 million pounds. If we assume that the interest on the capital required for this project is 4 percent, then that means that the annual losses will be no less than 7.8 million pounds. In addition, the bottoms of the watercourses will rise as a result of the decomposition and sedimentation of the Nile rose, and large expenses will be required to clean out the bottoms of the watercourses. In accordance with an estimate that the average depth of this sedimentary layer will be just 10 centimeters, the annual area to be cleaned will rise to 15 million cubic meters. If we estimate the costs of eliminating a cubic meter at 25 piasters, the annual losses will come to 4 million pounds!"

#### The American Corps of Engineers Is Leading the Campaign against the Nile Rose

Dr Ahmad Fakhri Khattab, chairman of the plant resistance department in the Center of Water Research, says:

"When the Nile rose invaded the United States, the government stopped sitting with its hands tied; indeed, it immediately started the war against it, and proceeded to pursue all the means one could imagine. The Nile rose was sprayed with hydrochloric, chloric and sulphuric acid, it was subjected to flowing jets of steam and hot water under high pressure, and it was sprayed with kerosene. When the plants continued to grow, the kerosene was ignited. The attempt was futile. Then after that they used manual forms of resistance, and, when the problem became more complex, aid was provided in a request for aid from the federal government, which led to the passage of a bill placing the task on the shoulders on the American Corps of Engineers. They started building boats that were outfitted with moving belts that brought the plants up to machines that crushed them.

"Finally, the Corps of Engineers issued a report demanding that it was essential that the resistance work not be restricted to cleaning out major navigation channels, leaving many surface areas infested and untreated, so that resistance efforts would not be confined to the months of growth; indeed they had to be extended throughout the year.

"At present, dredges equipped with big scoops pick up the masses of plants from the water channels and throw them onto the levees to dry, or trucks take them to refuse areas."

### Raising Fish That Eat the Plants

Regarding the means of biological resistance, Dr Ahmad Fakhri says that the study of biological methods did not start until recently in the world, and an international approach toward the use of plant-eating fish to eliminate the problem of the Nile rose has appeared. Among the examples of fish that have been successfully experimented with is the "plant Mabruk;" this is a fish that is caught, feeds on plants with very great appetite, and grows until its weight reaches 32 kilograms. Experiments were done on it in America in the early seventies, 20,000 hectares of water surface area that had been infested with plants were selected and these fish were released. In this manner it is possible to turn the plants into food for humans!

### The Plant Mabruk in Egypt

Eng Zaynab al-Gharibli says, "We have been able to raise 'plant Mabrucs,' in Egypt, and we have obtained brilliant results. We have carried out tests in artificial ponds erected by the Ministry of Irrigation, after bringing in the spawn from Hong Kong. The 'plant Mabruk' is distinguished by its ability to consume plants. A single fish weighing 1.2 kilograms can swallow close to 32 kilograms of plants in a week!

"This type of fish is characterized by the fact that it can tolerate temperatures of from 10 to 36 degrees centigrade. Experiments have proved that 50 kilograms of water plants are consumed to obtain one kilogram of fish. In addition, it is possible to attain a high rate of resistance by using 75 fish per hectare. The plant Mabruk is also distinguished by being hard to catch by ordinary fishing rods. All the results of these experiments were published by the Fifth Plant Conference in Australia under the title 'Resistance of Water Plants in Egyptian Canals and Drainage Ditches by Means of Plant Mabruk Fish.'"

Is it better to try to derive benefits and uses from water plants than spend money on expenditures for eliminating them?

Dr Ahmad Fakhri considers "Unfortunately there are not yet any simplified, easy means for controlling the spread of water plants, and elimination by hand, by chemical pesticides and mechanical equipment continues to be the only method used in the developing countries. They are all expensive; the developing countries spend a great deal of free currency importing these pesticides and this equipment. The first step we have taken in Egypt is to make dual use in turning water plants into protein by using plant-eating fish. This is what the Ministry of Irrigation has started to do."

### The Use of Nile Roses To Improve the Soil

Since non-organic fertilizer has become expensive for large groups of farmers in developing countries, at a time when the need for increased food production has become intense, Dr Ahmad Fakhri considers that it is possible to use water

plants as green fertilizer in a simple process, either by spreading it over the soil in the form of a surface layer, which is then plowed deeply when the soil is plowed or mixed with animal dung. Normally it is used to fertilize gardens. When the plant is spread over the surface of the ground, that reduces evaporation and erosion and increases the soil's ability to absorb and store water, which is an important matter for heavy, near-parasitic diseases.

#### Obtaining Power

Dr Ahmad Fakhri said, "During my visit to India, my attention was drawn to the fact that very kilogram of Nile roses yields about 370 liters [sic] of organic gas whose thermal value when used as fuel comes to 580 BTU's. That can be used in all applications of natural gas, such as cooking and as a source of power, and thus the problem can be turned around, so that it will be another source of benefit to the national income and end people's complaints about this 'blue devil!'"

#### The Nile Rose Is a Million Dollar Weed!

The Nile rose is distributed throughout all the countries of Africa. Its spread has inflicted exorbitant burdens in the form of these countries' expenditures to resist the plant. Eng Jean Kamil says that the problem has reached the level of a disaster; it is not a new problem, since Simpson presented recommendations in 1932 which the ministry took into consideration.

In the recommendations, he stated, "The Nile rose at the present time (1932) is still in the local stage, since it can be eliminated effectively and economically by manual labor, provided that that is supported by legislation which will be taken seriously and carried out. Any delay will make this matter more difficult, since the polluted surface areas will increase. Sprinkling by arsenic compounds is to be rejected totally, since the peasants use the water in the watercourses, including the drainage ditches."

The annual costs of the activities of resisting the Nile rose in the Sudan came to about 315,000 pounds in the first 5 years, from 1959 to 1965, then rose to 522,000 pounds in the next 10 years, then to 968,000 pounds in the last 5 years, and 1 million pounds last year. Moreover, these figures do not include the foreign portion bearing on the aid programs.

The seriousness of the Nile rose is in the fact that it reproduces vegetally and sexually. One experiment recorded that a pair of plants produced 30 offspring in 22 days. This rose to 2,200 offspring by the end of 4 months.

In Louisiana, (Binfound Werrel) isolated 10 plants and found that they reproduced vegetally and produced 1,610 plants in 3 months. He estimated that if circumstances were favorable in the period of the plant's [sexual] activity, it could double every 2 weeks and extend its cover at a rate of half to three quarters of a meter. At that rate, the 10 offspring would produce 655,360 plants covering an area of a feddan, and the weight of the cover, whose life would be 8 years, would range from 123 tons per feddan in the winter to 183 tons per feddan in the summer.

Therefore we find that if 100 offspring are neglected in a lake like Maryut or Idku, in 5 years the costs of eliminating them through chemical, mechanical and manual means of resistance would be estimated at more than \$1 million.

Therefore it has been called the worst weed in the world, the million dollar weed, the blue devil as they call it in Senegal, or the Florida devil as they call it in Africa, because of their belief that its contagion was transmitted from that state.

11887

CSO: 5000/4609

## COSTLY DESALINATION PROJECT FALLS VICTIM TO MISMANAGEMENT

Tel Aviv KOTERET RASHIT in Hebrew 23 Feb 83 p 39

/Article: "Bitter Tasting Fresh Water"/

/Text/ In one of the corners of the large yard of the power plant in Ashdod there are some rather attention-drawing installations, with a giant tank in the center. Not too many people realize that those installations do not produce electricity. This is a desalination project run jointly by the U.S. and Israel. The work, which took several years, only ended recently. The way things stand right now, the two governments will soon have to put up a sign in this place which will read: "Here were buried \$30 million."

The story begins in the early sixties, in a long series of contacts between the two governments. In June 1975 a contract was signed for a joint desalination project, next to the turbines of the Electric Company's power plant in Ashdod. It was going to be one of the largest projects of its kind in the world, if not the largest. The purpose was to develop and improve technologies in this area, and to provide concrete proof that large-scale desalination is possible, especially in order to apply the system to arid areas both in Israel and in the U.S. and try to sell the system to others. According to the contract (which will end in March 1985), the desalination project would provide 18,000 cubic meters per day. During the middle stage of the project, in early 1980, and after having worked on it for one year, the project was redefined to become part of a prototype that would double the output. When the contract runs out Israel will own the knowhow and the installations and the U.S. will share the ownership of the knowhow and the right of use. The financing was fifty-fifty.

#### A White Elephant

Administrative and professional failure caused delays of several years in the execution of the project. One of the things that happened along the way was the turning of the desalination project into a government-owned company (in 1979) and the Electric Company was to be brought in as a junior partner, with the Desalination Engineering company slated to become the main contractor for the project (in 1980). The various delays prevented the project from being completed before October 1982, when the installations were completed and went into operation. But in addition to the delays, the price of fuel went

up and the new refining technique became more expensive. The old power plant became outmoded and the collaboration is no longer cost-effective. In addition, new desalination techniques have been developed which make the prototype totally useless.

In the past two years some desperate attempts have been made to salvage something out of this white elephant. Thus, for example, garbage was being used as fuel and warm water from geothermic wells in the Ashdod area was used as a cheap source of heat for the installation, but to no avail. The joint Israeli-American steering team decided to postpone the second stage and to make do with the existing installation, called Stage A. None of this was publicized. Even the recent visit of the energy minister to the area went unnoticed.

The press was not invited, unlike the minister's first visit to this place.

9565

CSO: 5000/4510

ISRAEL

BRIEFS

SPARING LOW SULFUR FUEL--The Electric Company has bought tens of thousands of tons of low sulfur fuel containing only one percent sulfur. Although all the tanks used for storing this fuel are filled with high grade fuel, it is only used in an emergency, when a strong wind or a storm blows the smoke at a low altitude. The meteorological service is in charge of this matter, and the company used low sulfur fuel at the service's instructions. On normal sunny days when the cheap fuel is used, sulfur, ten times more than the usual amount, is emitted as well as other poisons. Despite the filters, a good deal of the smoke spreads to residential areas and pollutes the air. When someone suggested to use the high grade fuel because of its considerably lesser effect on the environment, someone decided not to waste it, except on those days when the weather demands it. /Text/ /Tel Aviv YOMAN HASHAVU'A in Hebrew 25 Feb 83 p 68/ 9565

CSO: 5000/4510

QATAR

BRIEFS

MINOR EARTH TREMORS--Earth tremors shattered windows and cracked doors in Qatar in the early hours of yesterday morning according to meteorological sources in Doha. [Excerpt] [GF141132 Manama GULF MIRROR in English 14 Apr 83 p 3]

CSO: 5000/4518



# LEAD POLLUTION AT DANGEROUS LEVEL IN COLOMBO

Colombo DAILY NEWS in English 26 Mar 83 p 1

[Article by T. Sabaratnam]

[Text]

Lead pollution has reached dangerous levels in some areas of Colombo which carry heavy vehicle loads, a study by Colombo University chemists has revealed.

The chemistry department of the University has an on-going lead-monitoring study in the capital city and the results obtained are causing concern.

Dr. S. Hettiarachchi of the university and Mr. C. Jayaweera of the Government Analyst's department, told an environmental pollution seminar in Colombo yesterday that the reading obtained at the Galle Road-Vajira Road junction at 7.30 a.m. on a working day demonstrated that the lead content in the air that people breathed was nearly twice the tolerance limit.

"We had readings of 90-100 micrograms a cubic metre. The tolerance limit is 50", they said.

"These were pave-

ment measurements", they added. "The readings would have been much higher in the middle of the road".

They fear that lead levels in busier places like Wellawatte, Bambalapitiya and Fort would be around 200.

The results were comfortable along the pleasantly tree-shaded Munidasa Cumararatunga Mawatha (Thurstan Road) where the measurements were between 10 and 15.

The seminar was told that there was a safe 10 to 20 reading in the environs of a Ratmalana factory manufacturing lead batteries,

thanks to the fact that a lead particle precipitating process was used there.

Dr. E. E. Mirando, a paediatrician who in 1967 focused national attention on the lead poisoning deaths of thirty children from Pellyagoda, said that lead damages a child's brain and inhibits its growth.

Experts present at the seminar organised by the Sri Lanka Association for the Advancement of Science (SLAAS) expressed serious concern about the findings and urged immediate action

CSO: 5000/4712

## DIFFICULTIES OF NATIONAL WATER OFFICE DESCRIBED

Djibouti LA NATION DJIBOUTI in French 17 Mar 83 p 3

[Text] Despite technical difficulties and its almost total dependency on the EDD [Djibouti Electric Company], will ONED (National Water Office of Djibouti), formerly the water Administration, now autonomous and responsible for its own management, be able to overcome all the problems it faces and provide a reliable supply of safe water to the people of the capital? At first glance, it would appear not, but that is nevertheless the ambition of ONED officials, who are relying heavily on the new status with which that public service has just been endowed.

ONED is the new name for the Water Administration, the national public service responsible for supplying safe running water to the entire capital and the country. Existing many years before independence, ONED officials inherited a situation far from satisfactory with respect to technology and personnel. Consequently, the water distribution service now faces major problems in general due to the unfortunate heritage. However, although the service is trying to overcome difficulties, the fact remains that some of the problems stem directly from its responsibilities. Water is often cut off and the people have to bear the consequences. According to officials, it is the rainfall during the rainy season that causes flooding of the Ambouli Wadi passing by the pumping station, plus extraction from the wadi by construction companies over the years and the strength of the current. With the wadi bed thus excavated and layers of alluvion covering the spillway to a disturbing extent, direct penetration by the muddy, unhealthy water from the flooding wadi is facilitated. During this period, water is colored and unsafe for drinking for some time. Epidemics of diarrhea occur among consumers because wells are not sufficiently water-tight. Nevertheless, the difficulties are not solely attributable, as ONED officials say, to damage caused by the rain. During the entire summer season lasting over 4 months, water is often cut off to users in the capital. Various explanations are offered, ranging from technical inadequacies to the nearly total dependency of ONED on the EDD.

#### Technical Inadequacies

ONED has technical difficulties because of inadequate equipment and the generally wornout condition of the underground pipes serving the capital. Some 70,000 meters long, the system, made up of 20,000 meters of iron pipe that is

completely worn-out and 50,000 meters of cement coated with asbestos, dates all the way back to the 1950's. This situation is the cause of breaks which in turn lead to flooding in certain places in the capital (Boulevard de Gaulle, for example). In addition to this very old system, there are not enough water (storage) reservoirs. Of the four now existing, three -- two with a capacity of 1,500 meters each and one of 3,000 meters -- are operational. The fourth is located in Ambouli and has been out of service since the 1973 earthquake. As for the safety of the water, it is determined in two ways: physical-chemical analysis and bacteriological analysis. In order for water to be safe from the physical-chemical standpoint, its content of minerals and toxic substances, its color, hardness, and so on, must be within the tolerances set by the WHO. The ISERST [Advanced Institute for Scientific and Technical Research and Study] has been entrusted by ONED with the task of periodic inspections of the characteristics of water distributed. Regarding bacteriology, the Hygiene Department makes samplings in order to complete analyses and ensure that the water contains no pathogenic germs. ONED injects a sterilizing solution of hypochlorite of calcium into the water. The sometimes excessive dose, which gives water the taste of bleach, is such that the free chlorine content measured at the station is .3 mg/liter. The continuing action of the product makes it possible to keep the water safe until it reaches subscribers' faucets.

ONED is also subject to restrictions hindering the accomplishment of its task: its energy dependency on the EDD. A blackout of one hour means that ONED has distribution imbalances, with a resulting total drop in the delivery system, which cannot supply the already inadequate reservoirs. This phenomenon mainly occurs in the summertime. Consequently, ONED, the victim of the EDD, is already planning to acquire generators for the Ambouli pumping station.

#### Problem of Balbala

In order to supply the Balbala district, which is at a higher altitude than Djibouti, a complete infrastructure must be installed: a pumping facility, delivery pipes, distribution reservoirs and finally, a distribution system. Such an infrastructure would amount to some 700 million Djibouti francs, which is not without problems. Thanks to the government, Libya and the European Central Fund for Economic Cooperation, most of the work has been completed or will be by September 1983. The last phase, involving the distribution system, will certainly be financed by the African Development Bank, which has already made commitments. The financing agreement was to be signed in May and work is scheduled to begin in October. But for the time being and despite the considerable effort made by ONED, the Balbala district, which has over 10,000 inhabitants, is dependent on a public fountain and water brought by donkey.

#### Slow Recovery

After independence, the Water Administration experienced a period of confusion until the establishment of a structure capable of managing and training personnel. The second task of the new leaders consisted, with the aid of specialized consulting firms, of making a precise analysis of the situation and needs to

define projects to be carried out in the order of priorities. The different projects led to detailed studies indispensable to the search for financing and completion.

### 1. Completed Projects

Two water recovery tanks with a capacity of 1,200 cubic meters, built at the Ambouli pumping station; two distribution tanks with a capacity of 1,200 cubic meters, with a sterilization facility at Balbala; doubling of the Arta delivery pipe; complete renovation of the Mouloud station, which provides water to Ali-Sabieh (two 15-kilowatt generators and three 37-kilowatt pumps).

### 2. Projects Underway

A new pumping station for Djibouti and Balbala with a capacity of 32,000 cubic meters a day and possibility of expansion; laying of the Balbala delivery pipe; construction of two 200-meter reservoirs at Arta and increased pumping facilities; the Dikhil and Ali-Sabieh distribution system to supply refugees.

### 3. Projects Whose Studies Are Completed and Whose Financing Is Being Sought

The Balbala system (first phase); doubling of the delivery pipe for wells; doubling of the Ambouli delivery pipe; the Balbala distribution system (second phase); replacement of iron pipes in Djibouti.

Agreements in principle have been obtained for some of these projects (African Development Bank, the Kuwaiti Fund, Saudi Arabia).

11,464

CSO: 5000/135

PROPOSED MISSILE RANGE SEEN AS THREAT TO ENVIRONMENT

Johannesburg THE STAR 29 Mar 83 p 11M

[Article by Melissa Langerman]

[Text]

**CAPE TOWN** — Conservationists' fears for the De Hoop Reserve and its surrounding environment have been fanned by visits to the area by Escom officials, and by the belief that military equipment will be tested over land rather than sea.

A conservation officer who does not want to be named said environmentalists had been appalled when they heard the area was being considered as a military testing site.

He said conservationists were sceptical about a statement by Minister of Defence General Magnus Malan that the area would not be adversely affected environmentally, and that projectiles would be fired mainly out to sea.

There was speculation in conservation circles that the area was being taken over as a land test site as an alternative to St Lucia, where military tests were apparently being done out to sea.

This, he said, was a possible reason for the amount of land (about 50 000 ha) needed.

The nature conservation officer in charge of De Hoop, Mr Piet van der Westhuizen, said if explosive projectiles landed in dry veld they would almost certainly cause fires endangering the fynbos in the area.

There is also speculation that a nuclear power station is to be built.

A conservationist in the area said officials in an Escom van had apparently been spotted in the veld, and that an Escom helicopter had flown over the De Hoop reserve on February 2, apparently engaged in a survey of "ecologically

sensitive areas from Stilbaai to Arniston".

A spokesman for Escom said Escom's presence in the area during February had no connection with Armscor.

He said the van and helicopter had been in the area for a general survey of possible sites for future power stations, and their effect on the environment of such areas.

The De Hoop-Potberg

Reserve area near Breddasdorp which is being threatened is one of the last breeding places of the Cape vulture and conservationists fear for their survival as helicopter activity (believed to be a search for possible radar sites) had already disturbed the colony.

The area shelters rare and endangered species of Cape fynbos and hosts a rich and varied birdlife — to date 211 species have been recorded —

and the most southerly body of permanently brackish water in Africa, internationally recognised as a reserve for water birds.

The reserve was bought by the Cape Provincial Administration in 1956 as a wildlife sanctuary in which to breed game. Today emphasis falls on the rare and endangered bontebok and Cape mountain zebra. There are now about 18 zebra and 250 bontebok on the reserve which will almost certainly be affected by tests of military equipment.

## SOUTH AFRICA

### DROUGHT PROMPTS EMERGENCY ENERGY PROGRAM

MB191259 Johannesburg SAPA in English 2014 GMT 18 Apr 83

[Excerpts] Johannesburg, 18 Apr (SAPA)--With the spectre of a dry winter offering cold comfort to much of South Africa, the government today announced an emergency project to ensure the uninterrupted generation of electricity and the production of oil from coal.

While reports of rain over the weekend came in from the eastern Cape and the Free State, the approaching end of the rainy season in the northern parts of the country and SWA/ Namibia, is spreading gloom with no signs of relief in sight before next spring.

About the only part of the country not in the grips of the drought is the western Cape, where bumper crops are being harvested.

Because of the severe drought in the eastern Transvaal the government, in cooperation with ESCOM [Electricity Supply Commission] and SASOL [South African Coal, Oil and Gas Corporation], today announced it is to start a R33 million project to ensure the uninterrupted generation of electricity and the production of oil from coal.

Making the announcement in Cape Town, the minister of environment affairs and fisheries, Mr Sarel Hayward, said this step was necessitated by the low water levels of dams in the Usutu, Komati and Vaal rivers.

"Although the present water supply is probably just sufficient to tide the country over the winter period it would be unwise to rely on early spring rains.

"The proposed emergency scheme will comprise a series of weirs between the Vaal Dam in the vicinity of Villiers and the Grootdraai Dam near Standerton, equipped with pumps. This will in effect put the Vaal River in reverse gear."

The laying of the pipelines would be initiated immediately with the object of completing the scheme before October this year.

"The scheme is vital to ensure the uninterrupted generation of electricity, and the supply of fuel from coal and the water cannot be made available for other purposes," he said.

Despite rain in parts of the eastern Cape over the weekend conditions remain extremely dry and the whole area is suffering from a water shortage. Water supplies in the eastern Cape are causing concern and dams are emptying quickly, SABC [South African Broadcasting Corporation] TV news reports.

The Ciskei is one of the worst hit areas. Cattle are reported to be dying and people are having to walk several kilometres for drinking water.

Many maize farmers are faced with financial hardship because of maize crops slashed by drought to 40 per cent of their normal size.

In addition no winter crops have been planted and prospects for the wheat crop look bleak. The availability of fodder for livestock is also causing concern with 51 districts in the area now listed as "emergency grazing areas," and suppliers are battling to keep up with demand.

Conditions in the western and far-western Transvaal and the northern Cape are also bleak. Although the rainfall in the area for the past few weeks has been heavier than the rainfall in the first half of the season, it has come too late to improve the overall position.

In sharp contrast to the rest of the country the western Cape winter rainfall area is the only agriculture region in South Africa where farming conditions have been normal.

CSO: 5000/157

SOUTH AFRICAN, CISKEI DEFENSE FORCES AID COOPERATIVE WATER-SUPPLY PROJECT

Pretoria PARATUS in English Mar 83 p 5

[Text] The drought-stricken rural population of the Republic of Ciskei is receiving emergency aid from the South African and Ciskei Defence Forces, who are piloting a co-operative water-supply project.

USING SADF Samil water bowzers, the team covers more than 5000 km supplying more than 1 000 000 litres of water every week.

The local population is entirely dependent on rain and river water for human consumption, stock and crops. The devastating drought in the area led to an emergency situation in which even the large dams around King William's Town dropped to a critically low level, and the water supply in rural areas slowly dwindled to nothing.

An appeal for assistance from the Ciskei government was answered within hours by Eastern Province Command, from which a convoy of water bowzers left for the Ciskei Defence Force base at Izele.

The team, comprising SADF drivers and co-drivers from the Ciskei Defence Force, supplies water to villages in the Dimbaza, Keiskammahoek and Frankfort areas. Each truck plies a route between Zwelitsha and the arid villages between six and ten times a day.

Village residents greet the arrival of each dusty water bowser with cries of friendship and welcome, and produce containers ranging from drums to buckets to collect the precious fluid.

The success of the project lies in the total co-operation between the two Defence Forces and their members. The drivers and co-drivers accept that they work towards the same goal and sharing the grueling demands of the task, have got to know and depend on one another.

PARATUS accompanied a vehicle on a typical delivery route. After filling the bowser at a hydrant in Zwelitsha, the Samil travelled over thirty kilometres of gravel road to a village in the dry Dikazi hills.

On their arrival the team, Pte Robin Smith and Rfn Christian Mzanywa, found a group of women meticulously cleaning the village's empty natural rock dam. After a friendly welcome the men proceeded to pump out the contents of the water carrier.



Within minutes a group of women and children gathered with buckets and drums, and the cool sound of the water attracted a flock of goats which came down to drink from the hills above.

"Being involved with this project has been a very good experience," said Pte Smith. He and his co-driver have a sound co-operative relationship and have learnt much about each other's very different lives.

"We are both soldiers, I understand him and he understands me," said Rfn Mzanywa.

For many members of the team the project was their first experience of working closely with fellow soldiers of another race. They, however, all agreed that the job had given them a deeper insight into each other and also themselves.

Lt.Genl Charles Sebe, the Commander-General of the Armed Forces of the Republic of Ciskei, says that the Republic of Ciskei, says that the Republic of Ciskei appreciates the tremendous co-operation and aid received from the South African Defence Force on drought relief, rural development, agriculture and economic development, as well as on a military level.

"This is an exercise of co-operation that illustrates to everyone that the different peoples in Southern Africa are willing to face problems together as equal partners," he says.

He adds, "The co-operation displayed between the Ciskei and the SADF is a clear indication of a tremendous future for Southern Africa."

CSO: 5000/149

## SOUTH AFRICA

### TRANSKEI DEFENSE FORCE AIDS DROUGHT-HIT PORT ST JOHNS

Pretoria PARATUS in English Mar 83 pp 4-5

[Text]

The severe drought experienced in the area dried out the town's main supply dams, leaving the resort dependent on a few boreholes which were unable to satisfy the daily requirements of more than half the population. Residents of local villages whose water supply comes from Port St Johns, were forced to carry water over many miles as their storage dams were empty.

The Town Council of Port St Johns appealed to the Transkei Defence Force, who installed a pump at the Umzimvubu River. Using their own water bowser and two supplied by the Department of Works and Energy in Umtata, members of the TDF transported water for the local population.

The enormity of the crisis proved this measure to be inadequate. Despite strict rationing, the boreholes and water bowsters were unable to pump enough water to meet the requirements of both townsfolk and villagers.

Top-level talks between representatives of the South African and Transkei Governments and the two countries' Defence Forces led to the institution of a joint project to relieve the crisis at the resort, which had arisen in the middle of the holiday season.

In mid-January a South African Army team from Eastern Province Command in Port Elizabeth started the operation in conjunction with the Transkei Special Forces Regiment. Led by 2Lt Jeremy Pearson, the team included drivers from 2 Field Engineer Squadron in Bethlehem, technical personnel to maintain the Samil water bowsters, signallers and an administrative officer. A team from Eastern Cape Medical Command included a doctor, a health inspector and a medical orderly.

At the start of the project water was pumped from the Umzimvubu River which runs through the resort. However, tests taken by Lt Anton Gouws, SAMS health inspector, and WO1 Sammy Moll, TDF Medical Advisor, showed the source to be impure and it was abandoned.

The situation was aggravated when Port St Johns was proclaimed a cholera area. Not only did the military personnel have to transport thousands of litres of water daily, but also it had to treat it against contamination.

Fortunately, although the water tables of both the Umzimvubu and Umngazi Rivers had dropped, water was still plentiful. The Samil bowzers, driven by SADF personnel with TDF co-drivers, were obliged to pump water from the Umngazi -- a round trip of more than 35 km. Averaging four trips per day, the bowzers covered a total of more than 500 km and supplied over 70 000 litres daily.

During the first three weeks of the operation the men trucked more than 1 107 500 litres of water from the river to the town's reservoirs and storage dams at local villages.

The reaction from both the townsfolk and villagers was one of gratitude and hospitality. Realising that without the joint aid from the TDF and their South African counterparts their predicament would have been critical, the local population as well as holidaymakers adopted an attitude of friendly banter with the uniformed personnel whose presence in the area was so necessary.

The project has also been enriching for the military personnel involved. Through their close co-operation members of the SADF and TDF have developed a better understanding of one another.

Rfn Simpiwe Filtane and his SADF co-worker, Spr Lawrence Brown, exemplify this growth. "With my brother beside me this hard work is no problem," said Rfn Filtane.

"Our job is tough, but working together well makes it a lot easier. We've got to know each other and get on very well," said Spr Brown.

Project leader 2Lt Jeremy Pearson, who speaks Xhosa fluently, said that the co-operation between the personnel had been excellent. The Transkei Special Forces Regiment, commanded by Lt Col Tim Bax, had made SADF members very welcome and provided assistance and advice.

"The men on the project have had a positive approach. This is a crisis situation and everyone involved understands the importance of the operation. They also realise that without each other we cannot succeed.

"Working together from early morning to evening six days a week has given them the chance to learn more about each other on all levels, and they have used this opportunity well," he said.

Capt Mike Kerr, the TSF Regiment's liason officer for the project, agreed. Not only had he encountered no problems with his men, he said, but also he had had positive feedback from them.

The Commander of the Transkei Defence Force, Maj Genl Ron Reid-Daly, expressed his gratitude for the co-operation of the SADF.

"We are very grateful for the assistance which was so readily made available. We are particularly impressed not only by the aid in the shape of water bowzers, but also the expertise of the medical personnel, the drivers and the workshop team.

"We have built up a close liaison on military matters affecting both countries and had great assistance in various areas, notably on a highly successful parachute training course. This augers well for the future so that we will better be able to fight the common threat together.

"The Transkei Army sprang from the SADF and still bears a very strong semblance to it in as much as training methods and organisation is concerned. We are very pleased to have had this opportunity to work together again in a cordial and friendly atmosphere," he said.

CSO: 5000/149

IRRIGATION FARMERS STAND TO LOSE MILLIONS

Johannesburg THE CITIZEN in English 5 Apr 83 p 3

[Article by Liz Neale]

[Text] Irrigation farmers in the Beestekraal/Koedoeskraal area south of Thabazimbi stand to lose about R20-million this year on their winter wheat crop following an announcement yesterday that their water quota for the year is to be cut completely.

Mr Jan Steenkamp, chief water control officer at the Hartbeespoort Dam, said farmers along the Crocodile River from Beestekraal to Thabazimbi would not be allowed any water as a result of the low levels of the Hartebeespoort and Klipvoor Dams.

"The new water year for farmers along the Crocodile and Pienaars River started on April 1, but the Hartbeespoort dam is 35 percent full while the Klipvoor dam is only 15 percent," said Mr Steenkamp.

This meant that these farmers would not be able to grow winter wheat this year.

Reacting to the announcement farmers in the Koedoeskraal area said yesterday the decision had come as a great blow to them.

"This area is ideal for wheat farming with a high yield per hectare," said Mr Neville Wenhold, chairman of the Crocodile River study group.

"Last year when the dam was 72 percent full we had an above average yield of 70 bags per ha. On an average we can expect R1 600 per ha return and, by multiplying this figure by the 13 000 ha usually under irrigation, the farmers in this area stand to lose about R20-million.

"Although this area accounts for only five percent of the total national crop the rest of the country is also suffering from the drought. The Cape seems to be the only area with good crops.

"While there are some farmers who rely on their boreholes and will be able to plant a crop there will be about 3 000 ha out of the available 13 000 planted."

"In my particular study group are 13 farmers with a total of 5 000 ha between them who are solely dependent on the irrigation scheme."

Farmers of the Hartbeespoort Dam irrigation scheme, whose water year ended in September, would still be allowed their full quota of irrigation water after which, Mr Steenkamp said, the position would be reassessed.

The Transvaal Agricultural Union in Pretoria said the severe drought had not been broken by recent rains over large parts of the Transvaal. It had brought only temporary relief.

At least 100mm of rain would be necessary to bring any significant relief to farmers, the Union said.

CSO: 5000/154

GLOOM RULES AS FARMERS WAIT AS DROUGHT GETS WORSE

Johannesburg THE CITIZEN in English 8 Apr 83 p 4

[Article by Fanie Hattingh]

[Text] Conditions in the drought-stricken areas of the country are deteriorating rapidly and most farmers have become reconciled to the fact that they can't realistically expect relief before next summer's rainy season.

Spokesmen for co-operatives in various parts of the country and other agricultural bodies said yesterday there was an almost palpable atmosphere of despondency in the farming community.

The recent announcement by the Government of a massive aid programme had achieved little in curbing the mood of dejection, they said.

Farmers were waiting for the conditions of the proposed aid to be spelled out in detail, but most were not very hopeful of overcoming their problems.

"The R150-million mentioned so far in terms of the aid programme will be nothing more than a drop in the bucket," a spokesman for the National Maize Producers' Organisation (Nampo), Mr Jan Lombard, said.

"The appalling situation in which agriculture finds itself was not caused only by the drought of the past two years, but by adverse farming conditions that have prevailed for many years."

Solutions

Mr Lombard said Nampo had decided at its recent congress to approach the Minister of Agriculture, Mr J J G Wentzel, to convene a working committee consisting of Cabinet members to consider the situation and to formulate long-term solutions.

Nampo would like the Ministers of Transport Affairs, of Finance and of Industrial Affairs, Trade and Commerce to serve on the committee.

In the Free State, farmers have begun turning their maize into silage on an unprecedented scale. The crop expectation in the area has dwindled to less than 40 percent of last year's poor crop.

Sections of the Vaal River have become so low that many irrigation farmers on both the Transvaal and Free State sides can no longer pump water.

#### Light Rain

Parts of the Northern Transvaal have had light rain during the past three weeks, but not nearly enough to improve grazing for the winter.

Most farmers have given up hope of sowing winter wheat next month because there is little likelihood of sufficient late rain. Hundreds of boreholes in the area have dried up.

Soaking rains fell yesterday in parts of the Northern Transvaal--particularly in the north-western border areas.

Places that reported good falls were Maasstroom, Swartwater and Towe, with Nylstroom reporting light rain and Potgietersrus a fall of 37 mm.

In Naboomspruit 110 mm of rain was recorded and hail caused considerable damage to wheat and tomato crops.

In the Transvaal Lowveld, growers of perennial crops--sugar cane, citrus and subtropical fruit--are expecting severe damage to their crops over the winter months.

#### No Income

With the rainy season at an end, they fear that their crops, which have a lifetime of up to 30 years, will have to be re-established after the coming winter.

This could leave many farmers without an income for up to five years.

Grazing conditions are critical and farmers have been unable to plant vegetables because of the low moisture content of the soil.

Eastern Transvaal farmers are also cutting maize on a vast scale and turning it into silage. Most stock farmers in the area are hoping to reduce their livestock to manageable numbers before the onset of the worst part of winter.

CSO: 5000/154



SOIL EROSION CONSIDERED 'THREAT TO NATION'

Protect Indigenous Vegetation

Harare THE HERALD in English 29 Mar 83 p 4

[Text] The signs of rapid soil erosion are frightening, the chairman of the Conservation Trust of Zimbabwe, Mr Ken Wilson, said yesterday.

Addressing delegates to the annual meeting in Harare, Mr Wilson said failure to protect indigenous vegetation cover would result in the precious soil disappearing fast.

Throughout the country, particularly near urban areas, woodlands were being destroyed at an appalling rate and the sight of dead stumps that were once beautiful trees was devastatingly depressing, he said.

Zimbabwe's weakness in conservation had been highlighted by the exploitation of river banks encouraged by unscrupulous men making "fast bucks" by selling riverbank firewood and growing crops there--and this had been worsened by the drought.

"Siltation of rivers and dams can be expected to be more severe during heavy rainy seasons than in drought years," he said. "Yet today, after two years of drought, the writing is on the wall for all to see."

Mr Wilson said indications were that in the event of a heavy rainy season next year, 50 percent of Lowveld dams would be 100 percent silted and thus rendered totally useless.

"When my depression gets really low, I begin to wonder if we, who devote our energies to conservation matters, are not doing more harm than good," he said.

"Are we not covering up the real damage by providing a smokescreen over the real problems? What influence do conservationists have on decisions of Government?"

In conservation circles it was known that in this part of the world the environment was of no consequence at all when deciding on big engineering projects, as had been shown by the controversy over the Mupata Gorge scheme, which had to be dropped for geological and not ecological reasons.

He appealed to the Government to make it an offence for "unscrupulous fuel pirates" to continue plundering rural firewood to sell at hefty profits in towns.

"It is a very difficult thing even to ask the Government to act until alternative fuel can be found. But if it does not act, alternative fuel will not be necessary because man won't be existing any longer," he said.

"The encroaching effects of tree cutting and other abuses to natural resources must be stopped and I believe we have only a decade in which to reverse the trend.

"The whole cause of conservation has never been in such danger as it is now, a danger increasing with every second that passes. I hope something can be done to reverse the trend or, at best, alleviate it."

### Silting a 'Big Worry'

SILTING of dams as a result of streambank cultivation around Harare continues to worry councillors, said the Deputy Mayor, Councillor Solomon Tawengwa, in a speech welcoming delegates to the annual meeting of the Conservation Trust yesterday.

"We have a lot in common," he said. "The council is currently engaged in deep thought as to the most effective way of conserving water to best advantage this year."

Councillor Tawengwa said any suggestions and consultations the trust might require would be welcomed by the council as this could contribute to the provision of safe water for domestic and industrial use.

The task had been made more difficult this year because rainfall in the city's catchment area had failed to fill dams, he said.

### Plan to Beat 'Creeping Cancer'

Harare THE HERALD in English 29 Mar 83 p 4

THE chairman of the Natural Resources Board, Mr Lance Smith, says conservation problems should be tackled by increasing production of essential crops, relieving pressure on the land and changing cropping patterns in more fragile regions.

He said the board had had a positive response to its request for an inter-ministerial meeting to enlist support of all ministers in combating a "creeping cancer" threatening a vast number of people.

Such a move would enable the country to face "the undoubted challenges calling for complete dedication of every man and woman to be a proud and independent nation all people aspire to be."

This could be done, but it needed bold and immediate decisions followed by action, he said. To tackle the problem steps should start with using the irrigation potential by building dams on the Sabi, Hunyani and Umfuli rivers.

Design data was available and work could start soon should a decision be made now. The idea had been regarded as the beginning of a new approach to land use in the country.

"Dryland cropping on marginal soils under marginal rainfall conditions is a disastrous policy resulting in crop failure and land deterioration."

"I knew the Prime Minister has conservation at heart," he said. "We are not improving, but sliding slowly and surely to a position which, aggravated by the demands of a growing and more enlightened population, cannot be contemplated with equanimity."

CSO: 5000/148

SWEDES HELP SEARCH FOR NEW WATER

Harare THE HERALD in English 4 Mar 83 p 13

[Text]

COUNTRIES in Southern Africa, hit hard by recurring droughts and increasing demands for water for domestic and agricultural purposes, must work together to overcome their problems, according to a Swedish water expert, Mr Peter Nurse.

Mr Nurse, who is leading a six man delegation to Zimbabwe with a view to participating in the country's water development, said he was surprised that, although the drought was of multinational interest, governments were working independently to solve its effects.

"Natural resources are not an area so far covered by the SADCC but it is within their interests from an economic and manpower point of view and to cope with the drought."

Normal reserves of surface water in the region were dwindling and it was essential that funds were steered towards exploration of new resources underground.

The delegation, made up of Swedish companies dealing in water technology, intended to supplement

Zimbabwe's efforts in the exploration, design and construction of water services which were necessary for the massive resettlement exercise.

Such a project would obviously have to be aid-financed and the Swedes would seek funds, subject to Government approval.

Mr Nurse said the solution to Zimbabwe's water problems lay in investigating ground water supplies and the prospects were good. However, there was need for basic hydrogeological surveys from the air and ground to know the extent of the supplies.

Most of the water drilling equipment in Zimbabwe was old and required a high level of maintenance. The Swedish companies would introduce new technology and train local people, "because we don't want to take our technology back home when we leave".

Mr Nurse said this was the first time Swedish companies had got together in such a venture to extend their services to Africa. The response from Zimbabwean authorities had been good.

CSO: 5000/131

FIRST PHASE OF NYADIRE DAM PROJECT LAUNCHED

Harare THE HERALD in English 8 Apr 83 pp 1, 3

[Text] The first phase of the \$4 million Nyadire Dam in Mutoko has been launched, an official in the Ministry of Water Resources and Development said yesterday.

Cde Michael Tumbare, an engineer with the ministry, told The Herald piping and the building of a water purification plant had already started.

"Designers have already completed the plan of the dam, and it is only the construction of the dam which has not yet begun.

"The dam, which will take at least two years to construct, will augment the water facilities of Mutoko centre and surrounding areas.

The purification plant would be completed by the end of October this year. The pipes would carry water from Nyadire River for 23 km to the purification plant.

By the end of this year Mutoko would have enough water.

The ministry has also built a reservoir with one million litres capacity at the purification plant, he said.

"Water flowing to the old purification plant will be diverted to the new one.

"After Nyadire Dam is completed, the maximum daily water production will be 3 600 m<sup>3</sup>, which is sufficient to last up to the year 2000.

"Mutoko won't ever have water problems again," said Cde Tumbare.

The Harare/Mutoko road would be realigned along the Nyadire River bridge so that it would not be flooded when the dam was completed.

About 140 families living in the proposed dam site would be resettled, he said.

The dam would not only supply water to the local people, but would also be used as a fishing ground and would provide irrigation and water for livestock.

This would help communal farmers in Mutoko to increase fruit and vegetable production.

The dam would be 9 m high with a capacity of three million cubic metres. It would have sufficient water for both industrial and domestic use.

The minister, Cde Cephas Msipa, was shown around the purification plant.

Earlier he told peasants at Makosa village, north of Mutoko, that the Government was doing all it could to save people from the drought.

"The Government wants all the people, even those in communal areas, to have piped water facilities.

"In this second year of national transformation, we want to see people getting water from as close by as possible, and that's why we have initiated a water project here in Makosa," he said.

The Makosa village water supply, to be completed next month, would serve 2 000 villagers, a hospital, a business centre, a primary and secondary school.

The project would cost \$215 000 and was started in January. The local community was digging trenches for pipes.

"My ministry has already provided 58 boreholes in Mutoko, since independence, and this year 11 new boreholes and 12 borehole cleanouts will be handled by my ministry, beginning from this month," said Cde Msipa.

The Government was considering digging wells as community projects and it would supply cement and handpumps. Dam sites were being studied so that facilities would be created for irrigation.

"When we build dams for you we want to see you practise good farming and preserve our soils as we don't want the soils to end up at the bottom of the dam.

"The Government is faced with constraints, such as shortage of equipment and technical staff, which make it difficult to implement water-supply projects as speedily as we would have wanted.

"However, I want to assure the people in Mutoko that my Government will do its best to provide you with your domestic and livestock water requirements.

"I appeal to you to think nationally as the Government has a duty to give relief to all its people."

Cde Msipa also inspected a new borehole at Hoyu resettlement area. It has 11 boreholes and 25 new ones will be built soon.

CSO: 5000/156

# BEITBRIDGE IRRIGATION PROJECT STOPS OPERATING DUE TO DROUGHT

Harare THE HERALD in English 29 Mar 83 p 9

[Text]

TONGWE--one of six irrigation schemes in Beitbridge from which the local communal people supplement their food requirements--has ceased to operate because of the drought that has struck the district for two seasons.

It is not the only one to cease operation, as Kwalu and Jalukanga in the western border of the district, were never rehabilitated after the war.

All that is left of Tongwe is the name, the skeletons of dead cattle, a few hundred barbel wallowing in thick mud of what was once a huge dam and the stink of fish offal.

There is a lot of offal where the fishermen dried their catches as the waterline of the dam receded. Now the barbel are fighting for their life as the mud pool becomes cracked and dry.

A woman was reported to have lost a breast when an angry barbel charged, slashing her breast with its fins.

And there is a report of a man who has a leg in plaster after a cornered barbel "charged" him.

It's not just barbel of Tongwe that are dying. In Beitbridge district there are more dead cattle and donkeys than scrawny ones left alive.

Humans are reported to be fighting each other for the chance of a bit of mealie-meal and other staples being distributed by drought relief organisations such as World Visions International.

The drought in Beitbridge has changed the course of nature.

Baboons are living on dwindling acacia pods and wild pigs have taken to foraging during the day, to finding new grounds along the highway where green fluff sprouts with any light rains. The wild pig has forgotten its shy nocturnal habits to survive.

It has been estimated that half the cattle still alive will die before the winter is over. Communal cattle farmers in Mtetengwe have driven their stock into neighbouring commercial farms, a number of which have been bought for resettlement.

One of these is the vast River Ranch on the west bank of Umzingwane River, where a number of commercial farmers are giving up their land to assist the resettlement programme.

But there is not a blade of grass to be seen on these ranches.

The communal cattle therefore wander on to irrigated crops on commercial farms along the Umzingwane River, causing a great deal of damage.

CSO: 5000/148



## DROUGHT AID PROPOSALS SUBMITTED TO MINISTRY

Harare THE HERALD in English 11 Mar 83 p 10

[Text]

DROUGHT relief proposals for more than \$500 million have been drawn up by the Zimbabwe National Farmers' Union, which also wants to see an insurance scheme set up to encourage producers to plan big.

The recommendations, submitted to the Ministry of Agriculture for consideration, came out of an extensive 10-day survey in the eight provinces last month to assess damage.

The president, Cde Gary Magadzire, said: "The frightfully disastrous findings demand undivided Government attention now to help more than 6,5 million people facing hunger, plus 1,6 million livestock sure to die.

"The seriousness of the situation calls for immediate action."

It had been estimated that more than one million cattle would be offered at Cold Storage Commission sales this season.

However, farmers in some areas had expressed concern that the CSC had indicated it was already fully booked while others said they had been getting \$15 per beast.

This, Cde Magadzire said, upsets developing

communities, which had already been moved to regard the CSC in bad light.

Though encouragement was being given to sell the vital wealth generating stock, there was a strong feeling that room should be left for the retention of some for future use.

As a matter of urgency, the CSC was being urged to buy stock in seriously affected regions and together with the Ministry of Lands, Resettlement and Rural Development work out ways of cutting down stock on heavily loaded pastures.

The Government should consider possibilities of allowing each household to graze an agreed number of stock on farms bought for resettlement; meet expenses of moving drought stricken stock to Highveld grazing available for hire; and meet costs of returning them.

It was noted that there would be no crops in the provinces of Manicaland, Masvingo, Matabeleland North, Matabeleland South and the Midlands.

And this also applied to pockets in the districts of Mutoko, Kariba, Dande, Wedza, Chenjiri, Sanyati, Magondi and Chitombo-rwizi.

"Drought relief should cover all production costs met in the 1982-83 season," he said. "Also, relief must slightly meet profits normally expected in a good season depending on the region.

"The aim of such relief should be to keep the industry on its feet as there is likely to be severe labour cut backs if farmers fail to get relief."

It had since been noted that past failure to harness water had now resulted in some farmers having to walk up to 12 km to water stock and fetch household supplies.

It had been recommended that an all out effort be made to put up more dams and boreholes, which should be subsidised by the Government if done by individuals or groups.

Subsidies would have to cover operations which could be carried out with the help of an irrigation fund, which it was seriously felt ought to be brought back.

Another suggestion was that a permanent committee or board be set up to always assess areas suitable for irrigation. The body would have to be co-ordinated by both the Ministry of Agriculture and the Ministry of Lands,

Resettlement and Rural Development.

While famine relief had been welcomed, it had been found necessary to point out that Grain Marketing Board deliveries be to depots which should be within a radius of 10 km of each potential customer.

"To successfully implement the above recommendations," Cde Magadzire said, "it is estimated financial requirements will be in excess of \$500 million."

Other sectors which could understandably begrudge farmers should such help be forthcoming were reminded that success of development programmes hinged on agriculture.

"Droughts in this part of the world are a permanent feature that it becomes necessary to tailor our agricultural policies in such a manner that we take into account the vulnerability of our farmers," he said.

"It should be part of our policy that the farmer is insured against losses beyond his control such as droughts. Without such an insurance very few farmers will take bold steps to programme for huge productivity."

## SQUATTERS DRIVEN TO CITY BY DROUGHT

Harare THE HERALD in English 11 Mar 83 p 3

[Article by William Bango]

[Text]

**A SQUATTER settlement is developing at Mbare Musika in Harare as people flee the severe drought in the hard-hit surrounding communal lands.**

About 100 pole-and-plastic shanties have already been erected so far, and more are expected to spring up with people moving in almost every week.

The squatters, most of whom were engaged in various income-generating activities to sustain a living, told The Herald yesterday that life in the rural areas had become very difficult because of the drought.

Some sought refuge in Harare, initially by joining relatives living in the city, and later decided to stay independently.

"There is nothing to do in the rural areas and I decided to come to the city to look for a job and take care of my family," said Cde John Chipare of Murewa, who settled at the musika in December, last year.

Cde Chipare is now established as a "green-grocer" near his "home".

Two other squatters interviewed said they used

to live at Mbare during the liberation war and had found life in the city better than in the rural areas.

"I stayed here for three years until I went home after independence. Since then, life has been so difficult for me that I decided to come back. It is easier to raise money for food here by selling various items than in the rural areas," said Cde Maria Marura of Mutoko.

The drought, described by the president of the Commercial Farmers' Union, Mr Jim Sinclair, as the worst in 83 years, would cause a rapid internal migration. People were likely to continue flocking into the cities either as job-seekers or squatters.

"Because we can't find jobs anywhere in the city, we have to embark on some form of self-reliance to feed our families in the rural areas. Although the conditions here are poor, they are not very different from most conditions in the rural areas," said one of the squatters.

Increased internal migration has resulted in all forms of vending being experimented with at Mbare Musika. Some of the squatters have started small "open canteens" where various forms of catering are being practised.

The recent rise in this type of business has threatened some of the already established vendors.

"Sadza and meat here is very marketable. For

instance, I prepare 10 big pots of sadza every day and make about \$15 profit," said Cde Ellen Mutuma, mother of five, who has always been selling at Mbare Musika.

She said her customers came from all walks of life including visitors from the communal lands and workers from nearby industries.

"We have been here for a long time and we are afraid that with the rate at which more people are settling and engaging in the same business, we may stand to lose."

Some of the customers interviewed at the "tables" said they preferred the food at the shanty town because it was cheap and more than what they could get from the hotels.

# BOREHOLES COULD AVERT CITY'S DROUGHT THREAT

Harare THE HERALD in English 11 Mar 83 p 9

[Text]

THERE are about 40 000 boreholes in the Harare metropolitan area, but at least half are not working, most because of shortages of spares and pumps.

A spokesman for a leading Harare borehole and pump company told The Herald that he had been "inundated" with telephone calls from people wanting to put their boreholes back into operation following requests from Harare City Council to stop using hosepipes.

"In many cases we are unable to help people because we can't get spares, and where people want a new pump, we have a four to five-month delay because of a shortage of foreign currency for this type of equipment."

He said the average borehole pump would, for purely household use, produce about 2 300 litres a day, in two to three hours of pumping.

This figure, multiplied by the number of disused or non-operating boreholes would save the city

an average of 136 million litres daily, purely on household use, excluding the watering of gardens.

This week the mayor, Dr Tizirai Gwata said the city was facing a shortfall of an average of 47 million litres daily, considering the present low levels of the dams supplying Harare with water.

If about 6 800 boreholes were recommissioned then, theoretically, this shortfall would not exist.

The spokesman said all the pump companies in Harare were working "flat out" trying to answer queries and repair boreholes and pumps which were not working.

"We are struggling for spare parts, but the threat of a waterless winter has certainly made people think about getting their boreholes working again."

He said his company had applied for an increase in foreign exchange for spares and modern, economical pumps, and were waiting to hear the results.

CSO: 5000/131

CALL FOR HARD NEW LOOK AT DDT ISSUED

Harare THE HERALD in English 28 Mar 83 p 5

[Text] THE Conservation Trust's annual meeting in Harare today coincides with a call by London-based research scientist with Natural Resources Board connections that use of DDT in Zimbabwe be critically analysed.

Dr. Peter Matthiessen, of the Centre for Overseas Research in Britain, says that though much has been written about the alleged serious side-effects which DDT is having in Zimbabwe, there are still not enough facts.

While it is true that DDT is widely used in Zimbabwe, he says that so far there is very little evidence to show that it is having serious biological effects.

Dr. Matthiessen cautions that it is unwise to extrapolate experience in the temperate regions because Zimbabwe's unique situation requires further study.

But, he adds in a paper prepared for the Zimbabwe Science News, this does not mean that caution by DDT users can be thrown to the winds, but that a US-style ban of the compound is not justified at present.

"In Zimbabwe's case it is possible that DDT use could adversely affect the economy by reducing the Lake Kariba fish, for example, or harming terrestrial wildlife and therefore tourism, but this would probably have to be balanced against the cost of abandoning this insecticide for expensive or less effective alternatives."

Dr. Matthiessen is a member of the team of NRB and COPR which is co-ordinating in a project to identify the source and rates of DDT run-off into Lake Kariba.

The aim is to determine which parts of the environment accumulate significant biological insecticide residues.

"This survey will then lay a sound basis for subsequent biological monitoring should this be warranted by the date," he says.

CSO: 5000/148

## DROUGHT TERMED 'TRAGEDY' FOR SOYBEAN GROWERS

Harare THE FINANCIAL GAZETTE in English 25 Mar 83 p 2

[Text]

**THE DROUGHT** is tightening its grip throughout most of Zimbabwe with unusually hot weather drying up rivers, dams and reservoirs throughout the country in the continuing absence of the longed-for late rains.

Until two weeks ago it was hoped that the drought-resistant soyabean crop would help to relieve the general gloom among those farmers who had invested in soyabeans after their maize plantings had failed earlier this year.

But the latest issue of *The Farmer* magazine this week dispels this hope.

Mr Warwick Hale, chairman of the Commercial Oilseeds Producers Association, was quoted as saying that the further dry spell after some mid-February rainfall had been "a tragedy" for the many new soyabean growers this season.

They would obviously be reluctant to have a look at this crop again. New growers as well as established growers had been earlier encouraged by increased price incentives for the crop and a tremendous amount of money had been invested in it.

But he said it now appeared that the returns were not going to be what was required.

"We might end up with a reasonable crop, but unfortunately it is not going to be the good one we were going to have at the middle of February," said Mr Hale.

Wheat is also certain to be in very short supply this year following the growing lack of stored water for the irrigation of this important winter crop.

An earlier report in *The Farmer* magazine said that the Middle Sabi and Chisumbanje areas were "unlikely" to plant winter crops

this year because the Sabi River was drying up. Crops which previously looked promising were deteriorating early in March.

A quoted report from Agritex said, tersely: "The situation is getting desperate."

**DETERIORATING**

Grazing in all provinces was deteriorating fast with many communal areas reporting no grazing at all. Daily cattle deaths are rising.

With maize crops also seriously affected in many areas, and even vegetable crops likely to be hit by the drought and growing shortage of water, Zimbabwe's food position will certainly be strained this year according to all agricultural reports.

Relief food projects for some famine-risk areas are already under way and even if some late rains fall the position is unlikely to be much improved — except possibly to help some stored water supplies if enough run-off is available.

All agricultural spokesmen believe that the single most important factor to help Zimbabwe through the coming dry months is the large amount of maize stockpiles previously conserved by the Government and the Ministry of Agriculture.

"Without that maize to fall back upon for the next eight months until the next rainy season, we should be in very serious trouble," said an Agritex officer this week.

However, it appears unlikely that Zimbabwe will be able to continue to export white maize this year in return for precious foreign currency of "switch-deals" for wheat or other commodities. It will be needed for local consumption until the next harvest can replenish national stocks.

## EARLY OPTIMISM OVER COTTON CROP DASHED BY DROUGHT

Harare THE FINANCIAL GAZETTE in English 25 Mar 83 p 3

[Text]

**DROUGHT** has had very serious effects on the likely cotton yield this year, said Mr C G Tracey, chairman of the Cotton Marketing Board committee, in a recent interview. He said it was saddening to see what could have been a record volume crop decrease to even less than last year.

"In October, we were greatly encouraged by the seed sales, especially the increase in the communal lands," he said. "We thought we might have a capacity problem in ginning the whole crop. Regrettably, this is no longer the case."

Mr Tracey went on to say that the CMB was delighted with the response of the communal growers to the remote receiving and grading depots. Once the whole programme for these depots was completed, no sizeable area of cotton production would be more than 65 km from a depot.

"To me it is obvious that the response to this facility can now be measured in terms of seed sales increases, which means a corresponding increase in cotton hectareage," he said.

"In turn, in an ordinary season, this will mean much bigger crops

and we will have achieved our objective of getting cash into the communal areas, and getting as many growers as possible out of subsistence farming and into the cash economy.

"We have just opened a new depot at Birchenough Bridge and we have plans for two more in the northeast of the country. We hope to have a depot wherever there is a need for one — our aim is maximum production."

Mr Tracey said that production in the Gokwe area was now in excess of the requirement for a gin, and plans were in hand for the erection of a new gin, which he hoped would begin operating in time for the 1984 growing season.

Of the other CMB gins in the country, Mr Tracey said that satisfactory progress had been made in replacing aged presses at three ginneries, and, in spite of increasing difficulties, the CMB management had succeeded in good time to complete overhauls of all other gin machinery.

"This will enable the Board to deal efficiently and expeditiously with the current crop", he said.

Turning to cotton in the commercial growing areas, Mr

Tracey said that the crop had once again demonstrated its ability as a "saver". In drier areas where maize crops were uncertain, he pointed out that frequently a reasonably yielding cotton crop could be seen adjacent to a maize crop which was a virtual failure. Cotton income would give that grower considerable assistance towards the total cost of farm production.

Overseas, Mr Tracey said that the market had firmed encouragingly over the past month. Steps taken in the United States on PIK programmes for those growers who voluntarily restrict their production, would, it seemed, reduce the total US crop considerably. This would help to eliminate the overhang of about eight million bales of cotton which had proved very difficult to sell, and which had a depressing effect on our markets, he said.

"If the upturn in the US economy, which seems possible, does take place, it could be followed by positive improvements in Europe, where the greatest pro-

## BRIEFS

DROUGHT AID DELAYS PROJECTS--THE Ministry of Water Resources and Development will defer some of its programmes to give priority to drought relief. The minister, Cde Cephas Msipa, told a meeting of the ministry's heads of branches through Zimbabwe in Harare yesterday that the drought had taught Zimbabwe that there was an urgent need to conserve water. District administrators had forwarded to the heads possible dam sites for their investigation and the ministry expected reports on various stages of the findings as soon as possible. He said his ministry had stepped up its recruitment drive for professional staff. Since November last year, seven people from Britain and two from Pakistan had joined the ministry. Interviews would be held in Australia at the end of next month and more interviews were likely in India depending on the response to offers made. Some friendly countries had made offers which would ease the pressure temporarily, but the long-term solution was to train Zimbabweans. He assured the heads that the Government was aware of the shortage of drilling equipment but there were indications that the fleet would grow with the arrival of four from Sweden next month. The minister praised Matabeleland provincial heads whose efforts, he said, had saved thousands of lives. This year's drought was a "challenge for to despair could mean sentencing our people and their livestock to death". Successive years of drought called for doubling up of effort and as a result, certain programmes would be deferred and top priority given to drought relief. [Text] [Harare THE HERALD in English 27 Mar 83 p 7]

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# SYSTEM OF GLOBAL ENVIRONMENTAL INFORMATION

Tashkent EKONOMIKA I ZHIZN' in Russian No 1, Jan 83 pp 75-76

[Article: "Protect the Earth"]

[Text] The earth is a large spaceship... without an exhaust pipe. This aphoristic phrase of Thor Heyerdahl characterizes quite accurately the ecological fate of our planet: the unwise actions of man on earth can lead to irreversible consequences.

In our hectic age of unprecedented scientific and technical achievements we are forced to return more and more often to the idea of Engels that every victory of man over nature has first of all the consequences on which he is counting, but second and third it has other, unforeseen ones, which frequently destroy the significance of the former.

One of these serious consequences, in particular, is the introduction by man in the biosphere and the accumulation in it of mutagens--chemical, physical and biological agents which are capable of affecting the most perfect thing that was created by the evolution of living matter--the genetic program of man.

"The heredity of man is entering the danger zone," the participants in the International Genetics Congress, which was held in Moscow in 1978, thus summarized the information accumulated by scientists. "In the human body there are genes which reliably protected our ancestors from various disease for millions of years. Now the environment is changing so so rapidly that genetic plasticity might simply not be enough...."

"The influence of man on the environment, as some scientific authorities note, is comparable to the geological process...."

Not in vain did the scientists of the world become so disturbed, having concentrated their attention on the search for means of protecting man from the environment and protecting the environment from man. The world movement for the cleanliness of water bodies and the air and for the preservation of the animal and plant world stepped up its activity. This problem goes beyond state borders and continents, it concerns every inhabitant of the earth, no matter where his home may be. Because it is a question of the well-being of our common large home--the planet earth. Precisely for this reason international programs, unions, associations, intergovernmental agreements, international and national committees have been established in recent years.



The first conference of the United Nations, which was devoted to conservation and nature protection on the planet, was convened 10 years ago in Stockholm. An international program of the United Nations on environmental problems, the name of which is UNEP, was set up in accordance with its decision.

A global system for keeping track of the state of the planet: air pollution, the contamination of foodstuffs and livestock fodder, water quality, the accumulation of harmful substances in the tissues of man and the transfer of solid particles over the borders of states, was organized within UNEP. The monitoring of the climate--how man influences weather conditions--was set up. The monitoring of glaciers and deserts, the animal and plant world.

Recently in Nairobi (Kenya) the representatives of more than 100 states of the world discussed the report "The State of the Environment in 1972-1982" and other documents, in which the serious anxiety over the state of our planet was expressed. The session adopted the Nairobi Declaration--an appeal to governments and peoples to increase the gains made during the "ecology" decade.

In November of last year our city--Tashkent--was also the site of a meeting of international representatives who are actively interested in solving this global problem. A working conference of specialists of INFORMOOS--an international problem-oriented information subsystem on questions of the protection and improvement of the environment of the interested CEMA member countries and Yugoslavia--was held here. Questions on the creation of a uniform information retrieval language and the automation of information processing were discussed at the conference. For work with computers the natural language should be translated into an artificial, information retrieval language--a thesaurus. The specialists examined the draft of a thesaurus, in which today there are about 2,000 lexical units. During the year its experimental checking will be carried out, and then the results of the experiment will be examined anew at the next conference.

Here, in Tashkent, the third regional conference of the International System of Sources of Information on the Environment for the CEMA member countries and Yugoslavia--INFOTERRA UNEP--was held. INFOTERRA is the information system of the implementation of the UN program on the environment, UNEP is a unique reference service of an international scale. In its directory there are the addresses of tens of thousands of institutes, various institutions and departments, which have materials on the environment and are studying this problem. INFOTERRA receives every month about 400 requests, but its possibilities are practically unlimited, as the chairman of this organization stated.

They would be happy if there were more and more requests, since this would attest to an increase of the interest in ecological knowledge and, consequently, the solution of the problem would be getting nearer.

I. V. Chirgadze, deputy chairman of the State Planning Committee, greeted the participants of the conference in Tashkent, which was held in the assembly hall of the Scientific Research Institute of Economics of the Uzbek SSR State Planning Committee. He told about the economy of the republic and the work on environmental protection and emphasized the enormous importance of the information support of the problem and of international contacts in the accomplishment of this most important planetary task.

Many interesting reports, including on the work which the Soviet Union is performing in accordance with the UNESCO program "Man and the Biosphere," were heard in the process of the deliberations.

The meeting participants familiarized themselves with the work of the Samarkand Center of Scientific and Technical Information attached to the Uzbek Scientific Research Institute of Scientific and Technical Information.

The guests of Tashkent expressed gratitude to the Uzbek SSR State Planning Committee and the Uzbek Scientific Research Institute of Scientific and Technical Information for good organization.

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## MONITORING OF TOXIC SUBSTANCES IN SOIL

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 10, Oct 82 pp 61-62

[Article by Candidate of Chemical Sciences M. I. Lunev, the TsINAO, and Candidate of Chemical Sciences E. I. Babkina, the Institute of Experimental Meteorology: "The Increase of the Efficiency of the Work of the Services for the Monitoring of the Contamination of Soil With Toxic Substances"]

[Text] At present the monitoring of soil contamination is being carried out by several organizations: the Statewide Service for the Study and Monitoring of Environmental Pollution (OGSNK) of the USSR State Committee for Hydrometeorology and Environmental Control, the agrochemical and sanitary epidemiological services, the plant protection service and a number of others. Departmental tasks are worked on when implementing monitoring measures, which determines the work program and the specific nature of the procedural approaches in the different services. At the same time there are a number of problems, which can and should be solved with the use of uniform methods or methods which are similar in their essence. Among them are the taking of representative samples and their analysis for the content of contaminants, the checking of the quality of analytical operations, the processing and interpretation of the obtained results and a number of other questions. Such an approach will make it possible to obtain reliable and comparable data on the levels of contamination of the soil of farmlands with toxic residues of the agents of chemicalization, to evaluate the situation with allowance made for all the factors and possible consequences and to recommend effective steps on the prevention of the contamination with chemical agents of both objects of the agrocenosis and the environment as a whole. The implementation of such an approach is possible only under the conditions of the effective and efficient coordination of the activity of departmental monitoring services, its basic directions and procedural support, which will make it possible to increase substantially the effectiveness of the work of all the services.

The indicated questions were examined at the conference "The Increase of the Effectiveness of the Work of the Service for the Monitoring of the Contamination of the Soil With Toxic Substances," which was held from 12 to 16 April 1982 at the Institute of Experimental Meteorology (IEM) of the USSR State Committee for Hydrometeorology and Environmental Control in Obninsk. Representatives of the Soyuzsel'khozkhimiya All-Union Scientific Production Association and the USSR State Committee for Hydrometeorology and Environmental Control and specialists of the planning and surveying stations of the use of chemicals in agriculture and agrochemical laboratories, the Hydrochemistry Institute (GKhI), the Institute of Experimental

Hydrometeorology, the TsINAO [not further identified], the All-Union Scientific Research, Planning and Technological Institute of the Chemical Industry, the network laboratories of the State Committee for Hydrometeorology and Environmental Control and a number of other organizations took part in the work of the conference. The conference participants presented 26 papers, in which the results of the work during the 10th Five-Year Plan, the basic directions of the activity of the monitoring services during the current five-year plan and the possibilities of the coordination of their work at different levels were examined.

The basic problems, which arise in the case of the contamination of the soil with anthropogenic chemical toxicants, were touched upon in the paper of S. G. Malakhov (Institute of Experimental Meteorology), "The Monitoring of Soil Contamination as a Part of the General Problem of the Protection of Land Resources and the Tasks of the Organizations of the USSR State Committee for Hydrometeorology and Environmental Control." The precise and efficient monitoring of the levels of contamination of soils with residues of pesticides, heavy metals, benzapyrene, petroleum products, radionuclides and other toxicants is called upon to play an important role in their solution. A number of anthropogenic compounds, which contaminate the soil, are already being monitored by the network laboratories of the USSR State Committee for Hydrometeorology and Environmental Control, at present preliminary studies are being conducted for other toxicants. The speaker indicated the unsolved problems, with which one has occasion to be faced when carrying out the systems monitoring of the pollution of the environment, including soils, with toxic substances. Among them are the standardization of analytic methods, the estimation of the level of contamination of soils and the comprehensive study of the behavior of contaminants in various natural environments. The need for the establishment of the dependence of the degree of contamination of objects of the environment on the nature and intensity of the source of contamination was indicated.

In the paper of M. I. Lunev (TsINAO), which was devoted to the results of the work and the tasks of the toxicological subdivisions of the agrochemical service on the monitoring of the contamination of soils, it was noted that the questions of the coordination of the work of the agrochemical service on the monitoring of the content of residues of pesticides in the soil with the monitoring organs of other departments, as well as with the related services of the USSR Ministry of Agriculture are reflected in the program of work of the agrochemical service for the current five-year plan. Suggestions were made on the making of a clear differentiation of the activity of the departmental services and on the creation of interdepartmental coordinating organs for the monitoring of residues of pesticides at various levels up to the krais and oblasts. The speaker noted that coordination is acquiring a special role under the conditions when the list of components being monitored is becoming more and more extensive. At present work on the monitoring of the content in the soil and plant products of residues of regulators of plant growth is being expanded in the agrochemical service. Attention was directed to the need for the quickest possible elaboration of "universal" standards of the permissible content of residues of agricultural chemical agents in the soil and other objects of the environment.

The peculiarities of the use of chemicals in agricultural production in different regions of the country dictate the need for an individualized approach to the planning and performance of work on the monitoring of the content of toxic residues of agents of the chemicalization of agriculture in objects of the environment. In her

report M. M. Pushkareva (All-Union Scientific Research, Planning and Technological Institute of the Chemical Industry) reported on the elaboration of regional programs for the RSFSR. Particular attention is being devoted when implementing monitoring measures to the analysis and characterization of the potential and actual sources of the contamination of the soil of farmlands with chemical toxicants. Examples of the successful implementation of regional programs in the Yakutsk ASSR, Vladimir Oblast and other regions of the RSFSR were cited.

Ts. I. Bobovnikova (Institute of Experimental Meteorology) reported on the results of the study of the behavior of a number of organochlorine pesticides in objects of the agrocenosis with the use of a balance model. The distribution and dynamics of the content of various isomers of hexachlorocyclohexane and metabolites of DDT in the soil and the transfer of these substances to adjacent environments were shown. Experimental data, which characterize the differences in the removal with the surface run-off of residues of pesticides on fallow parcels and parcels planted with cultivated plants, were cited by the author.

The prediction of the possible levels of the content of contaminants in the soil is an important component of the monitoring of soil contamination. The data on the actual content and behavior in the soil of the toxicants being monitored and models of their behavior in objects of the environment are being used extensively for these purposes. V. A. Borzilov (Institute of Experimental Meteorology) reported on the elaboration of a model of the behavior of pesticides in the soil and adjacent environments. Satisfactory results were obtained as a result of the testing of the model on experimental testing grounds. Preparation for the use of the model on large areas of farmland is now being carried out.

Criteria, which would make it possible to estimate the levels of the content of contaminants in the soil from the point of view of their hazard both for agricultural products and for the fertility of the soil, are needed for the organization of the effective monitoring of soil contamination. At present the different services are using extensively as such criteria the maximum permissible concentrations which have been approved by the USSR Ministry of Health. In her statement Ye. G. Molozhanova (All-Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers and Plastics) told about the state of affairs with the study of the maximum permissible concentrations of pesticides in the soil and the prospects of these studies. It was noted that the use of nontraditional methods, for example, simulation modeling, makes it possible to shorten considerably the time of the elaboration of standards of the permissible content of pesticides in the soil. Positive results were also obtained when using design methods. The speaker noted that the universality of the maximum permissible concentrations can be achieved by the enlargement of the list of indicators being studied. Thus, the standards for symtriazine herbicides were elaborated with allowance made for the phytotoxic indicator along with traditional hygiene indicators.

In the case of the conducting in different departments of the systems monitoring of environmental pollution serious attention is being devoted to questions of the gathering, processing and storage of the obtained information. The statement of A. S. Shadrin (Institute of Experimental Meteorology) was devoted to one of the promising directions in the solution of this problem--the creation of data banks. The speaker especially dwelled on the difficulties with which one has occasion to be faced when developing the first section of such a bank, which is connected with the monitoring of the contamination of soils with residues of pesticides.

At the conference considerable attention was devoted to the methods of analyzing soils and other objects of the environment for the content of residues of pesticides, as well as to the monitoring of the quality of the indicated analytical work. Questions of the standardization of the methods and the organization of the internal and external monitoring of analytical work at network laboratories were examined in the paper of E. I. Babkina (Institute of Experimental Meteorology), "The Evaluation of the Quality of Analytical Measurements for the Purpose of Ensuring the Reliability of the Data of the Monitoring of Soil Contamination." The audience was acquainted with the results of the work on the modification of the methods of determining the residues of organochlorine pesticides and herbicides in the soil, which is being performed at the Institute of Experimental Hydrometeorology. Questions of the standardization and the increase of the effectiveness of the methods of determining the residues of pesticides in the soil were also examined.

V. G. Tsukerman (Alma-Ata Affiliate of the TsINAO) reported on the results of the evaluation of the quality of analytical work in the Kazakh and Kirghiz SSR's and proposed a number of simplified methods of determining the organochlorine pesticides in the soil. Procedural questions were also examined in the paper of Ye. P. Virchenko (Institute of Experimental Meteorology), "The Standardization of the Methods of Taking Soil Samples for the Purpose of the Correlation of the Monitoring Data of the Services of Various Departments."

Serious problems can arise in the case of the contamination of the soil, along with pesticides, with other chemical toxicants. The results of the study of the soils of farmlands for the content of heavy metals around various industrial enterprises, highways and other objects were covered in the statement of E. P. Makhon'ko (Institute of Experimental Meteorology).

The conference participants also heard reports, in which the results of the check of soil for the content of fluorine (T. N. Morshina, Institute of Experimental Meteorology) and benz(a)pyrene (A. I. Shilina, Institute of Experimental Meteorology) were cited, as well as were acquainted with the experience of the comprehensive study of the contamination of the natural environments around industrial centers (Yu. S. Kuklin, Institute of Experimental Meteorology) and with the problem of the pollution of the air with organic compounds (P. Ye. Tupulov, Institute of Experimental Meteorology).

At the sectional meetings on the monitoring of pesticides and heavy metals in soils the results of the implementation of monitoring measures were examined and the experience of coordinating the work with related monitoring services in the zones being serviced was discussed in the statements of N. I. Maystrenko (Kiev Affiliate of the TsINAO), A. T. Shutkina (Kishinev Affiliate of the TsINAO), T. I. Kolyada (BelNIIPA [not further identified]), I. P. Zhuravleva (Leningrad Station of the Chemicalization of Agriculture), N. A. Kalachev (Gorkiy Station of the Chemicalization of Agriculture) and representatives of the network laboratories of the State Committee for Hydrometeorology and Environmental Control.

During the general discussion the conference participants supported the need for the uniting of efforts in the solution of conservation problems which arise in connection with the intensive use of agents of the chemicalization of agriculture. It was noted that along with the development of the positive experience in the coordination of work, which already exists in a number of oblasts and republics of

the country, it is also expedient to use in practice other forms of joint work, particularly the holding of regional coordination conferences, the adoption of uniform methods of work and the monitoring of the quality of analytical work. The wishes to use in practice in the future such interdepartmental conferences with the invitation of representatives of all the services for the monitoring of environmental pollution were also expressed.

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## OVERVIEW OF SCIENTIFIC, TECHNICAL MEASURES FOR PROTECTION OF ENVIRONMENT

Moscow EKONOMICHESKAYA GAZETA in Russian No 11, Mar 83 pp 1-2

[Overview prepared by the Department of Low-Waste Technologies and Preservation of Nature of the USSR State Committee for Science and Technology]

[Text]

## Scientific-Technical Progress

State Capital Expenditures on Measures for Protection  
of Environment (in comparable prices, billions of rubles)

1971-1975 6.3

1976-1980 9.3

1981-1985 10.3

Air, water and the plant and animal world--all that surrounds us, require constant protection against harmful effects. The earth's resources are enormous, but not infinite. Their careful and economical use was spoken of at the 26th CPSU Congress.

The seven scientific-technical programs being implemented in the 11th Five-Year Plan are intended to improve the monitoring and protection of the environment.

The problem of nature protection agitates each of us. It is a matter of such vitally important matters as the air and water and the health and well-being of the present and future generations. The active economic activity of man does not take place without consequences for the environment. Scientific-technical progress places at the service of society ever-newer forces of nature. It is important that this intervention be careful and responsible, with thought of tomorrow.

The development of science and technology in our country is continuously connected with the solution of tasks of natural conservation. Measures on the monitoring and protection of the environment and the rational use of natural resources have become an inalienable part of the annual and five-year plans of branches and regions, enterprises and organizations.

In the 11th Five-Year Plan seven scientific-technical programs are being implemented in accordance with which the following will be developed and introduced:



- effective methods and apparatus for protecting the air basin against contamination by harmful substances;
- scientific-technical principles of the territorial redistribution of water resources;
- scientific-technical principles and a complex of measures to improve the use and preservation of water resources;
- progressive systems for the rational use of water for drinking and technical purposes and the prevention of contamination of water resources;
- effective methods and means of control of contamination of the environment;
- new technological processes assuring maximum use and neutralization of industrial and household wastes;
- a system for monitoring (studying and dynamics) the background state of the environment and climate.

#### Pure air

Whereas previously, in the best case, there was 90-percent purification of discharges into the atmosphere, now methods and apparatus are being created for the removal of solid particles from flue gases of thermoelectric power stations on the level of 99-99.5 percent. In accordance with the program the developed system for the conditioning of flue gases by the method of moistening them before purification in electrostatic precipitators.

During moistening the specific resistance of ash particles is reduced, on account of which the effectiveness of purification increases. This system has already been successfully tested in a 500,000-wattpower unit of the Troitskaya GRES. The annual saving was 310,000 rubles. The introduction of such ash collection installations during combustion of coals of the Eibastuz and Kuznetsk deposits will permit reducing the discharges of ash by 3 million tons a year.

In the present year the "AvtoVAZ" Association, with the participation of the Scientific Research Institute for Gas Purification in Industry and Sanitation (NII Ogaz) of the Ministry of Chemical and Petroleum Machine Building, is finishing the installation of a bag filter of the "PRO" type with a filtration surface of 6,000 square meters for the purification of gases of steel melting furnaces. The saving from introduction of such devices at "AvtoVAZ" will amount to 300,000 rubles.

Questions of the purification of the discharge gases of oxides of sulfur, nitrogen and carbon have as yet been solved to a far lesser degree. This required accelerated expansion of scientific research and design developments on so-called "wet" methods of gas purification guaranteeing thorough neutralization of discharge gases of oxides of sulfur and nitrogen. Work is being done on the creation of an ammonia cyclical method of purifying gases of sulfur anhydride during combustion of solid fuel with the utilization of captured products, and also a limestone method with the obtaining of gypsum.

In 1982 a system was created for the purification of aspiration air from volatile distillates in the production of coal-graphite articles. At the Dneprovsk Electrode Plant (at Zaporozh'ye) an experimental installation has been introduced, with a capacity of 7,300 cubic meters per hour, which assures 99-percent purification.

Used as the main equipment here is a thermocatalytic reactor developed by the Derzhinsk branch of the NII Ogaz. The use of bauxite as a catalyst instead of the precious metals platinum and palladium will permit obtaining a saving of about 30,000 rubles a year from the introduction of a single installation.

### Living water

The national economy of the USSR consumes about 350 cubic kilometers of natural waters, which is not more than 8 percent of the annual renewed resources of the river runoff of the country. However, there is a substantial difference in the level of the water supply by regions. For example, Uzbekistan uses 71 percent of the natural waters.

In connection with this, more and more importance is being acquired by the problem of diverting the runoff of Siberian rivers into Central Asia and Kazakhstan, and also of northern rivers into the Volga basin. It was planned to construct several pilot systems with an area of 1000-1500 hectares in Kurgan, Kustanay and Turgay oblasts. Experimental results obtained here will be made the basis of plans of large-scale irrigation systems on the path of a canal. The extent of the main diversion canal of Siberian rivers into the Aral Sea basin amounts to over 2000 kilometers.

The water factor exerts an increasingly decisive influence on the disposition and development of the country's productive forces. Under those conditions great importance is acquired by questions of further improvement of the water cadaster. By 1985 it is planned to put into operation the first line of an automated information system for the stock-taking of waters and their use.

At the present time in the USSR there are about 2600 water reservoirs with a volume of over a million cubic meters each. Automatic control systems are being created for their complex use. The goal has been set that the interests of water-users be combined on the basis of achievement of the national-economic and not the territorial or departmental effect.

Under present conditions it is unnecessary to talk about the diluting and self-purifying capacity of reservoirs. Waste waters must be purified to natural conditions or for recycling. Investigations are being conducted on the creation and introduction of technological processes of dimineralization and purification, new coagulants, solvents, flocculants and other reagents, substances and materials for processing water.

The main thing is the construction of water-supply systems without drainage for enterprises in the most water-retaining branches of industry--cellulose-paper, metallurgical, chemical and oil refining. The principal quantity of production wastes consists of tonnage of waste waters. The creation of such systems will serve as the first step on the path of transition to low-waste technologies, the introduction of which will become not only a decisive factor of protection of the environment but also an effective means of saving raw material, fuel-energy and consequently also natural resources.

The equipping of enterprises and populated areas with equipment for the purification of waste waters already has contributed to improvement of the state of reservoirs

and increase of fish productivity. Along with that a new problem arose--the disposition of enormous volumes of forming precipitates. The following directions are promising in that respect:

- improvement of the technologies for processing precipitates of waste waters into useful products, including fertilizers;
- the use of waste waters for the irrigation of agricultural crops;
- the raising of fish and hothouse crops on the warm discharge waters of thermal and nuclear electric power stations and industrial enterprises;

The development of the requirements for the planning of an energy-biological complex in the city of Elektrogorsk near Moscow has been basically completed. This year the development of biotechnical normatives for raising fish and agricultural crops with the use of the waste heat of electric power stations will be completed.

There are over 65,000 water consumers in the country. Thus, on the Volga there are about 10,000 water intakes, on the Dnepr over 6,000. The largest of them belong to irrigation systems and thermal electric power stations.

In 1982 the technical documentation was issued for the manufacture of experimental models of fish-protective devices for water intakes of the Sevan and Dauganpils hydroelectric stations, and also the Spassk, Kalmyk-Astrakhan and other irrigation systems on the Volga and Kuban'. The tests of the experimental model of the new fish-protective equipment last year confirmed its 100-percent efficiency and operating reliability. Unfortunately, decision of the question of series manufacture was delayed in the USSR Ministry of Tractor and Agricultural Machine Building and the Ministry of Land Reclamation and Water Resources. Therefore the equipping of water intakes with the new means of fish protection is being held back, although in the Volga basin alone this would have permitted preserving from death over 6 million young sturgeon and other species of valuable fishes a year.

#### Monitoring instruments

Now a statewide service for observing and monitoring the environment, headed by the Goskomgidromet, is being formed in this country. Needed for its effective functioning are means of measuring characteristics of the air, water and soil and the level of their contamination. Instruments meant for industrial use are not always suitable for other purposes. Here it is required to determine the concentration of a number of harmful substances on levels of  $0.001 \text{ mg/m}^3$  of air or  $0.0001 \text{ mg/liter}$  of water.

The program for development and organization of new technical means of monitoring contamination of the environment is oriented in the current Five-Year Plan toward the creation of automated systems, mobile laboratories for estimating the quality of atmospheric air and surface waters, and also a number of instruments based on modern chromatographic, ion-selective and spectrophotometric methods.

At the end of 1982 the USSR Ministry of Instrument Making, Automation Equipment and Control Systems (Minpribor) and Goskomgidromet introduced at Rostov-na-Donu the first pilot automated system for monitoring water quality--the ANKOS-VG. In 1983 it is planned to manufacture the first adjustable series of an automated meter of electric conductivity and acidity of natural and waste waters, developed by the Tbilisi NPO "Analitpribor."

The basic model is being created of a universal spectral gas analyzer of industrial discharges, which will be standardized and constructed on the basis of the modular unit principle. This will permit substantially reducing the time required for creating instruments for analysis also of other substances.

The Smolensk NPO "Analitpribor" has manufactured a test model of a portable gas-analyzer for monitoring carbon monoxide in motor vehicle exhaust gases. In 1983 the adjustable series will start to be made.

Not harmful, but beneficial

Industry already is oriented toward the processing of production wastes. The reserves there are an untapped region. In the national economy about 5 billion tons of wastes are formed annually, including about 80 million tons of slags of ferrous and non-ferrous metallurgy, 100 million tons of ash-slag wastes of thermal electric power plants, tens of millions of tons of overburden and enclosing rocks, so-called tailings from ore beneficiation and slurries from the enrichment of phosphogypsum, of sawdust and the like.

Slags of non-ferrous metallurgy are still used on 3.3, phosphogypsum on 7 and ash-slag wastes of thermoelectric power stations on less than 10 percent. Only blast-furnace slags are used on 74 percent, mainly to obtain crushed rock, pumice and ground limestone.

Execution of the tasks of the scientific-technical program will permit, according to calculations of specialists, bringing in 1985 the share of the use of slags of non-ferrous metallurgy to 21 percent, of phosphogypsum to 20 percent and of ash-slag wastes of thermal electric power stations to 95 percent. Through halite wastes the technical sodium chloride requirements will be completely satisfied. The range of application of blast-furnace slags will be expanded.

The use of secondary metals, glass, resins, plastics, paper and other materials is characterized by very high indicators of economic effectiveness. For example, aluminum obtained from wastes is 8-10 times cheaper than that extracted from bauxites.

The scientific-technical program contemplates the creation and mastering of new technological processes assuring maximum use and rendering harmless of industrial and household wastes, such as waste paper, ferrous and non-ferrous metals and polymeric film. The economic effectiveness of the planned developments during the realization of the planned volume of introduction will amount in the long term to 250 million rubles. Those figures include the drawing into production of secondary material resources, the reduction of the land areas withdrawn under dumps and the reduction of damage inflicted on the environment.

Provision has been made for development of the scientific principles of monitoring the environment, the creation and improvement of the methodological principles on the monitoring, planning and prediction of the state of the natural environment both on the whole for the country and for regions for the long range of 15-20 years.

Territorial complex plans for the preservation of nature are the basis on which regional planning of measures for the preservation and improvement of the environment will be accomplished. On the example of the Angreno-Almalyk, Nizhne-Amudar'ya and Yu-

zhno-Tadzhik territorial-production complexes, Moscow, Leningrad and newly planned cities, Leningrad and Khar'kov oblasts, methods of compiling such plans are being developed.

Measures have been approved on the complex use of mineral-raw material, land, water and energy resources in Issyk-Kul Oblast and rayons of the Chuyskiy valley, and measures are being determined on the preservation of natural resources in the Baykal basin.

On the whole the scientific-technical programs for the preservation of nature are being successfully realized. However, separate tasks designated for 1981-1982 remain unfulfilled. The USSR Ministry of Power and Electrification (Deputy Minister F. Sapozhnikov) has not coped with the manufacture of experimental installations for the purification from sulfur anhydride of the flue gases of the Gubkin and Severodonetsk thermal electric power stations. The USSR Ministry of Petroleum Refining and Petrochemical Industry (Deputy Minister M. Sisin) has dealt with work on purification of discharge gases at the Novokuybyshevsk Petroleum Refining Combine. The Ministry of the Coal Industry (Deputy Minister V. Belyy) has not provided the financing of the construction of experimental installations to purify the drainage and mine waters in the zone of the Kansk-Achinsk complex.

Meanwhile, it is precisely these ministries which ought to act toward ecological measures with greater responsibility.

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USSR

#### PLANS TO DEVELOP DNEPR HYDROELECTRIC DAM

Moscow Domestic Service in Russian 1730 GMT 6 Apr 83

[Summary] Ukrainian scientists, in conjunction with specialists of many organizations, have begun to develop the Lower Dnepr Hydroelectric dam, which will help to protect the nature of the Dnepr-Bug salt lake.

Vladimir Rabyko describes the wild life of this lake. An irrigation system is being intensively expanded in the basins of the Dnepr and the Bug which means that less fresh water is getting into the lake. The present salinity of the lake is nearly 4 grams per liter, and by the end of this century it may exceed 7 grams which, one might say, will be devastating for the lake's water flow and its wildlife. The problem also arises of supplying water to major towns like Kherson, Nikolayev and Ochakov. The drinking water is becoming saltier as the water is hit by winds from the Black Sea. For this reason difficulties have arisen in supplying water to some irrigation systems. Consequently, barriers against the Black Sea waters need to be built.

Rabkovich, a leading specialist in the field, says that this dam will be built at the point where the Dnepr-Bug lake meets the Black Sea. When the wind drives the salt water from the Black Sea the sluice-gates of the dam will be closed, but for the rest of the time the dam will be open and will allow the interchange between the Dnepr and the Black Sea to continue unhindered. A draft of the project will be passed to a state commission for approval within a year or 18 months.

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END