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14 October 1982

Worldwide Report

ENVIRONMENTAL QUALITY

No. 372

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TWO-THIRDS OF NSW WHEAT CROP MAY BE LOST TO DROUGHT

Sydney THE SYDNEY MORNING HERALD in English 14 Aug 82 p 5

[Article by Amanda Buckley]

[Text]

This year's wheat crop in north-western NSW — one of Australia's biggest wheat-producing areas — will be only one-third of last year's crop because of the drought, according to a wheat forecasting company.

The managing director of Australia Wheat Forecasters Pty Ltd, Mr Brian Bailey, said yesterday the north-west area was expected to produce 250,000 tonnes of wheat this year, compared with last year's 730,000 tonnes.

Mr Bailey said his company used a variety of indicators for its wheat forecast including rainfall figures, seed and superphosphate sales and the quantity of grain insured.

The company produced figures recently showing the wheat crop for the whole of NSW could be as low as 2.25 million tonnes, compared with 5.7 million tonnes last year.

A spokesman for the Australian Wheat Board said the north-west of the State had experienced an extremely dry winter, and it was too late in many areas for wheat to be sown this year.

He said there was no doubt that bread prices in the city would rise dramatically if the wheat crop was as low as the forecast figure.

A director of the Dubbo Pastures Protection Board, Mr Peter Blackett, said yesterday only 60 per cent of the Dubbo district had been sown, and the crop was in a poor condition.

He said farmers who had not sown wheat already would now wait for spring rain, and plant barley or safflower seeds instead.

Mr Blackett said it was impossible to say yet whether the wheat crop would fail, but if there was not some substantial rain by the end of September a great percentage of the crop would be lost.

CSO: 5000/7566

1,000 ACRES OF PRODUCTIVE FARMLAND BEING LOST DAILY

Canberra THE WEEKEND AUSTRALIAN MAGAZINE in English 14-15 Aug 82 pp 1, 2

[Article by Richard Baird]

[Text] Australia is losing about 400 hectares--1000 acres--of good farmland every day.

In NSW alone, the State which is under heaviest pressure from land speculation and sub-division, the Department of Agriculture estimates that between 1970 and 1979, 592,000 ha (1.5 million acres) was lost to farming.

For all its land mass, the prime farming land area of Australia is small, mainly along the coastal fringe. It amounts to a mere 20 million hectares or four per cent of the continental land area. And it is along the coastal fringe where the greatest pressure for human development occurs.

During that decade up to 1979, the NSW Department of Agriculture says the greatest pressure came from hobby farmers. Of the land taken from mainstream agricultural production, 504,000 hectares (or 95 percent) was subdivided into hobby farms. Urbanisation took 4.2 per cent and mining 0.7 per cent.

Subdivision of farming land is a continuous process around most of Australia's population centres. But the areas under greatest pressure are the North Coast of NSW and the south-east corner of Queensland where there is attractive countryside and a semi-tropical climate, the Adelaide Hills in South Australia and the countryside fanning out from Canberra where some of Australia's best grazing land has been cut up for weekend escapes for ACT workers.

Prime farmland is under threat from less direct actions of man. Soil erosion is a nightmare, as is salinity. The horrific proportions of the problem can be gauged from the fact that the Victorian Soil Conservation Authority estimates that 100,000 hectares have been salt-affected in four regions of the State since white settlement began.

The loss of land through alienation and erosion has been accelerating in recent decades. Its potential danger to the economy is enormous: nearly

45 per cent of our exports (or $9000-million) come from the primary sector. The depredations of human encroachment have been masked by the ever improving technology available to farmers.

"When you get urban development on rich volcanic soil, it is a national tragedy," said NSW Agriculture Minister, Jack Hallam.

Hallam is quick to say his major concern is with prime farmland: he sees no reason why lower grade lands should not be used to satisfy the rural yearnings of urban families. He also argues that some hobby farmers are a great asset.

"Along the North Coast there are people who are pioneering new horticultural industries, lychees, kiwi fruit, avocadoes and macadamias. These are often professional people who retire with some capital and are receptive to technical advice," said Hallam.

But, too often, there are the other types of hobby farmers. Two years ago, at a speech in Orange. Hallam said that local authority officials frequently complained they had difficulty in obtaining owner co-operation, mainly because the owners visited their hobby farms only once or twice a month. In the meantime, the noxious weeds spread and the sheep got ticks.

In 1975, the NSW Legislative Council was told of one sub-division at Mudgee, typical of many similar developments. Most of the 25-acre blocks had no electricity connection and some had no water supply. Noxious weeds such as St John's wort and Bathurst burrs were a problem as well unmended fences and the consequent stray cattle and horses, and the sheep in many cases had lice and ticks.

The sad fact is that prime land is irreplaceable. The Myer Report on Technological Change stated that much of our remaining potentially arable land is marginal and it was doubtful whether present technology would make its use an economic proposition.

The Northern Territory Government is attempting to develop new agricultural areas but these lands could never replace the vital farmlands of the coastal areas and tablelands.

The Adelaide Hills is a major agricultural area of South Australia but now hobby farmers outnumber fulltime agriculturalists two to one.

Apart from the weed and pest problems which often bedevil the part-time farmer, his arrival has a domino effect on the area. Peter Murphy, a town-planning lecturer at the University of NSW describes it as a situation where the remaining farmers cannot afford to add to their properties because — with nearby subdivisions in 40 ha or more blocks — the price of land in the area becomes economically unjustifiable in terms of agricultural production

A study of the Cudgen area in the Tweed Shire in the far north of the State shows that in 10 years the value of a typical 20 ha property has risen from $30,000 in 1970 to $450,000 in 1980 — and rates rose on such a piece of land by an average of 60 per cent each year.

Further, the prices being offered for land tempts the farmer to sell for good profit and either retire or buy a new farm elsewhere. In the US it is the farmers who have opposed zoning of land to prevent subdivision — they want the chance to make a killing and retire.

Agriculture Minister Hallam said modern technology means inevitably that efficiency requires large units. "This land that is being cut up is often land that should be aggregated into bigger parcels."

Urbanisation is another form of human encroachment. Even today there is considerable agricultural activity within easy reach of our major cities. In Sydney, in the Cumberland Basin, bounded by the Hawkesbury River, the Blue Mountains and Menai, there is a rich network of market gardens, flower growing and intensive whole milk units.

Peter Murphy predicts that within 20 years all this land will have been swallowed by urban sprawl.

"It will mean people in Sydney will have to pay a higher price for their fruit and vegetables and they will be dependant on the rail networks to bring it to Sydney.

If the Australian picture looks grim, the agricultural outlook in the US is worse — and a warning of what could happen here. The US Agriculture Department has predicted that the country will lose more than a quarter of its prime land by the end of the century, a development which will seriously reduce America's farm exports. America is losing land at the rate of three million acres a year, most of it to urban sprawl.

The threat of land lost forever is only slowly dawning on Australians. But it is more than just a question of subdivision and speculation.

The NSW Government, which is the most active agency in the war against soil erosion and land alienation, is using the Landsat Satellite to map the State's soil types. Hallam's plan is to develop — with the co-operation of local government — a minimum subdivision standard for each soil type. While that may be 50 ha on the Hawkesbury flats, the minimum might be 80,000 ha on the western plains.

The problems of soil degradation are not so easily solved. An assessment of soil conservation needs was undertaken between 1975 and 1977 by a joint Commonwealth-States study. It showed that 52 per cent of land in rural use needed treatment for land or vegetation degradation. That land amounted to a third of Australia's land mass.

The commitment to soil conservation is hardly impressive. Queensland in 1980-81 spent a tiny $2.85 million, Victoria $5.6 million. NSW was well ahead with $28.5 million.

The effects of erosion can be dramatic. The Soil Conservation Service of NSW has found that, on the black soils of the Namoi Valley, a season of bad erosion can mean a fall of 30 per cent in wheat yields.

In addition to the normal forms of soil erosion — top soil being removed by wind and water — the presence of salt is seriously affecting farmland. It is estimated that a massive 386,300 square kilometres are affected by salt.

Salinity occurs where water tables are altered either by irrigation or removal of tree cover. The salt deposits which are left at root level of plants either kill them or stunt growth.

The irrigation salinity is located mainly on either side of the Murray into which much of the salt water drains. It was estimated several years ago by Monash University geography student, Nanette Oates, that nearly 40,000 ha of Victoria's irrigated land is affected by salt; the capital value of that land was $172 million and the estimated permanent loss in value due to salting was about $110 million.

Across the Murray, in southern NSW, the State Government is spending $24 million to save 47,000 ha in the Wakool area. This land, traditionally used for rice, pastures and wheat, was irrigated in 1934.

Before that it was covered by several large holdings of dry lands with about one sheep to every four hectares. After irrigation arrived, 400 families were able to live off this area of land. It was not until 1956 that the effects of the salting were taken seriously.

In 1963 drains were cut across the land to try and remove some of the salty sludge. By the mid-1970s, six farms had been abandoned and 81,000 hectares laid waste. The land looked and felt as though it had been covered by sump oil, the trees had died and the grass disappeared.

For Jack Hallam it is essential that people should be alerted to what is happening and a debate begun on the wide issue of farmland, from hobby farms to soil erosion.

"I think there is a beginning of interest in land degradation," he said. "This problem makes the issue of rain forests look minute. Agricultural land can be improved every year provided we don't allow it to be blown or washed away or affected by salination. We have to look after this land for future generations

CSO: 5000/7566

POLL SHOWS PUBLIC CONCERN OVER POLLUTION AT 75 PERCENT

Melbourne THE AGE in English 14 Aug 82 p 6

[Article by Rosslyn Beeby]

[Text]

Three of every four Melbourne residents believe pollution in Victoria is a serious problem, according to a recent telephone survey by the Environment Protection Authority.

However, only one-third of those surveyed were aware of the EPA's role in montitoring and preventing pollution.

The survey found that despite generally high public awareness of the EPA as an organisation, public attitudes to its duties and performance were "uninformed and apathetic".

Few of those interviewed could give specific examples of the EPA's effectiveness, and only three in 10 were aware of the EPA's "pollution watch" telephone complaint service.

Only 8 per cent considered the EPA to be effective in controlling pollution, and 16 per cent were unable to offer an informed opinion on the EPA's performance.

The survey also found that the public was not sufficiently aware of the dangers of non-airborne pollution. When asked to suggest areas in which the EPA should take action to control pollution, most answers showed participants thought of pollution solely in terms of air pollution, especially motor vehicle emissions.

Twenty-five per cent wanted more pollution controls, but only 10 per cent wanted large fines for offenders and 5 per cent wanted lead removed from petrol as a source of pollution.

A spokesman for the EPA said the survey showed a need for the EPA to increase public awareness of its responsibilities and activities.

A similar survey by the EPA of Victorian journalists showed that 62 per cent thought the EPA exercised average to below average influence in exercising effective pollution control and environment management.

Industry, government and community action groups were cited as equally or more influential.

More than half the journalists participating in the survey said the EPA should ultimately be responsible to the public but that the State Government was in reality the actual "owner" of the EPA by virtue of its control.

CSO: 5000/7567

ENVIRONMENTALISTS IN WA CHART FUTURE PRIORITIES

Perth THE WEST AUSTRALIAN in English 3 Aug 82 p 7

[Text]

DELEGATES at a weekend meeting at Yanchep earlier this month did something almost unheard-of in conference circles: They became so absorbed in their deliberations they forgot to meet in the bar for the traditional Saturday night's socialising.

Instead, they worked until after midnight in what turned out to be a 16-hour day.

When it was time to break up at noon on Sunday a few diehards were still lobbying for an extension of time.

The topic that sent them home red-eyed and weary was conservation and its integration with development.

It was not, however, the kind of confrontation Perth has come to expect but an agreement on a set of priorities that should serve WA well into the next century.

The conference was called by the Conservation and Environment Council to decide on a framework for a State conservation strategy following the release of the World Conservation Strategy two years ago.

This document was prepared by the International Union for Conservation of Nature and Natural Resources, the United Nations Environment Programme and the World Wildlife Fund.

Effort

It was released in 34 countries with the recommendation that each develop its own plan in an effort to put an end to the laissez faire development that is depleting and wasting the earth's natural resources at frightening speed.

The Federal Government is preparing the draft of an Australian version to be discussed at a conference in Canberra in February.

Eventually the States will take it up and refine it further to meet local conditions and aspirations.

WA was first off the mark and its draft proposals should be completed in about three months.

The other States have chosen to wait for the Federal document, a move that has been described as commendably cautious or, a little cynically, as a ploy to delay as long as possible the need for decisions that must, inevitably, affect development.

In the same way, WA's decision to take an early initiative has been criticised as further evidence of the kind of bloody-mindedness that afflicts people once they cross the Nullarbor.

For once, however, the criticism seems unjustified.

The Government's decision to move quickly is only anticipating what all the States are expected to do eventually. Because each State is responsible for its own strategy it will not necessarily be tied to federal priorities.

In practice, the federal conservation strategy will give a national overview of and commitment to conservation but even at this stage it is not hard to forecast sharp differences in emphasis from State to State.

"We anticipated many of these differences in WA by bringing together 40 people from government, industry, local government, rural interests and private citizens representing as many points of view as we could," said Mr Thane Riney, the convenor and a former consultant to the United Nations Food and Agriculture Organisation.

"The usual way to deal with a problem like a conservation strategy is to decide on general ideas and then make recommendations to the people concerned: For instance, to ask what business and industry plan to do about it.

"We tackled it the other way round. We got our inputs from people who are used to making decisions on the ground, to try to get them to sort out their own problems.

"We found that no one objected to looking after the land in the future, even those who are exploiting it now.

"Delegates said that if they could find a better way of managing it they would.

"There was a healthy willingness to come to grips with the problem. Most organisations asked how they could help."

As the delegates saw it, WA has a wide range of conservation problems—more than 30, covering the field from stocking rates on pastoral leases to game fishing and reef protection.

Crystallised

By the time the weekend was over these had crystallised under five headings:

- Environmental problems in agricultural and pastoral

areas like soil degradation, salinisation and over-grazing.

- Land allocation and management for parks and reserves.
- Quality and quantity of water supplies.
- Degradation of coastal zones and estuaries.
- A mixed bag of other issues that included flora, fauna and vista protection, education and national pride, waste disposal, urbanisation and political priorities for conservation.

Now that it has an agreement on the main priorities, the Conservation and Environment Council will send them back to smaller committees for clarification.

Some issues, like forests, are already covered by comprehensive management programmes.

Others have accepted strategies that need more development.

Some policies already in operation will need major revision and expansion.

The council plans to hold several more seminars aimed at still further refinement.

The University of WA has agreed to hold a day-long seminar on conservation issues later this year and Murdoch University will survey public attitudes to conservation.

"We had six months to put the strategy together and we are half way through," Mr Riney said.

"We spent the first three months gathering data. After Yanchep we can begin to fill in the gaps."

When completed the strategy will go to the council's president, Dr J. de Laeter, and eventually to the Minister for Conservation and Environment, Mr Laurance.

The Government sees it as an important document in planning WA's future and a useful contribution to the national conservation strategy.

But how much clout will it have?

The short answer is none, in the sense that the strategy will not be legally enforceable.

"What it will do is set up a framework for continuing dialogues," Mr Riney said. "If Yanchep was any indication people are keen to maintain the quality of life in this State.

"They recognise development is necessary but they're not sure they want it at any price and they don't want to lose too much in the process.

Watchdog

"There is a need for some kind of watchdog to identify problems and resolve conflicting interests.

"At present the best we have are the Conservation and Environment Council, the Environmental Protection Authority and beyond them the Government itself.

"A State conservation strategy is a formula for survival.

"Its role is to set trends. Some have already started.

"Organisations which before Yanchep had no conservation policies have begun to think about them.

"Public awareness of the problems is itself a pressure for improvement.

"But, in the end, the strategy will work only as people like you and me want it to work."

CSO: 5000/7566

MURRAY RIVER PROBLEMS PLAGUE THREE STATES, FEDERAL GOVERNMENT

Sydney THE SYDNEY MORNING HERALD in English 3 Aug 82 p 10

[Article by Rod Frail]

[Text]

MELBOURNE. — A new wrangle over the use and abuse of the Murray River system is about to break out, involving the Commonwealth andt he States of South Australia, Victoria and NSW.

The South Australian Government has reported this week that no water is flowing through the mouth of the river and it is in danger of silting up completely, as it did last year.

South Australia fears this would cause widespread environmental damage as well as destructive flooding in the area around Lake Alexandrina, where Australia's largest river system flows to the sea.

It cost South Australia $50,000 to reopen the mouth when it silted up last year and the Government believes the Commonwealth and the two other States should contribute to the cost of what looks like becoming an annual problem.

Victoria, NSW and the Commonwealth have all been non-committal about this, so far.

The South Australian Minister for Water Resouurces, Mr Arnold said yesterday the river is now virtually dammed.

The level of water has not been high enough to get past the barrage gates at Goolwa, which prevent sea water moving upstream and mixing with river water near the mouth.

This, combined with lack of high tides and strong winds, has meant a build-up of sand bars at the mouth.

The situation poses two threats: Stagnation of the wetlands of the Coorong near the mouth, which supports a huge bird and fish population, and the flooding of nearby populated areas when rains upstream fill the river but the water cannot escape.

The exploitation of the Murray has been a source of great bitterness between the States for a long time.

South Australia, which relies almost entirely on the river for its water, complains that it is last in line after NSW and Victoria have taken their fill and polluted what is left.

The situation has become critical in recent years, with more and more land being opened up for irrigation, which restricts the flow of water and causes a build-up of salt.

This, combined with pollution from riverside towns and industry, threatens the viability of Australia's largest and richest food-producing area.

Mr Arnold has set up a five-man force, comprising representatives from the State's Electricity and Water Supply Department, its Planning and Environment Department, and Adelaide University, to examine the problems at the river mouth and report within three months.

South Australia will then propose to the River Murray Commission, which represents the interests of the four governments, that the Commission's responsibility be extended beyond the Goolwa flood gates to include the mouth, and that all the governments contribute to the costs involved.

"The reason why the mouth closes up is because of the high commitment of water further upstream," Mr Arnold said. "The mouth is part of the Murray system and should be part of the responsibility of the River Murray Commission."

A spokesman for the Federal Minister for National Development and Energy, Senator Sir John Carrick said the Commonwealth was sympathetic to South Australia's problems but would wait to consid- commenting further.

er the results of its study before

To judge by past performances, another session of haggling between the States seems inevitable.

After more than eight years of argument between the parties, the Prime Minister, Mr Fraser and the three State Premiers agreed last October on terms to regulate the quality of the river water.

As a result of this agreement, the River Murray Commission will be able for the first time to control the quality as well as the distribution of the water, in an effort to reduce salinity.

However, 10 months later, uniform legislation by the four governments to ratify the agreement has yet to be passed, because the new Victorian Government has asked for more time to consider it.

The Victorian Minister for Water Supply, Mr White, said South Australia's proposal would have to be the subject of further consideration by each of the States.

CSO: 5000/7566

OPPONENTS OF MORETON SAND MINING SEEK FEDERAL AID

Brisbane THE COURIER-MAIL in English 5 Aug 82 p 10

[Article by Bill Ord]

[Text]

THE Queensland Conservation Council will seek legal aid from the Federal Attorney-General to help it fight applications for sandmining leases on Moreton Island.

It has also launched a Moreton Island Defence Fund appeal to help cover the full legal costs of its action in the Brisbane Mining Warden's Court.

The council's co-ordinator, Miss Liz Bourne, said yesterday it believed it qualified for federal legal aid because the island was on the Commonwealth's National Heritage Register.

The Commonwealth also had a special interests in the matter because the island sandmining issue was one of national importance, and because the Federal Government had powers to block the export of Moreton Island minerals.

After a preliminary hearing of the Mineral Deposits Ltd sandmining applications yesterday, the mining warden, Mr Blythman, SM, set Monday, October 11, as the starting date for a full hearing.

With more than 90 objections lodged and at least 30 witnesses to be heard, the case is expected to last three to four weeks.

Miss Bourne said, "Tens of thousands of people are appalled at the idea of sandmining Moreton after seeing what mining did to Fraser Island and what it's doing to North Stradbroke.

"Now is their chance to put teeth into their objections — by contributing to the defence fund the QCC will administer from its headquarters at 147 Ann Street," she said.

CSO: 5000/7566

FEDERAL GOVERNMENT FUNDS BOTANICAL INVENTORY OF QUEENSLAND

Canberra THE AUSTRALIAN in English 18 Aug 82 p 8

[Article by Ross Peake: "Vast Botanical Stock-Taking Finds Scars in Brigalow Land"]

[Text]

THE clearance of Brigalow in Queensland 20 years ago almost eliminated native plants and animals in that area, say botanists working on a stock-taking of botanical heritage.

Team leader, Professor Ray Specht, of the Univerisity of Queensland, this week warned that many valuable botanical zones and plant communities were still suffering substantial damage.

Only small pockets or narrow strips of woodland remained in some areas, often along road edges.

Professor Specht said that to establish and maintain a proper balance between conservation and legitimate use of the countryside, listing the varieties of native plants that remained and knowing where they were was essential.

Much of this information was available, in various forms, but must be gathered together in a computerised data retrieval system.

The stock-taking team is financed by a two-year, $26,058 research grant from the Federal Department of Home Affairs and the Environment, in the National Estate program.

The botanists have programmed about 4000 kinds of plant life, from about 500 sites.

Professor Specht said conservation of botanical heritage had been neglected badly in seven main zones.

Zones

These were the Mitchell Grass Plains, extending through western and northwestern Queensland into the Northern Territory; the Mulga Zone and Desert Acacias; the Nullarbor Saltbush country; the Great Basalt Plains of Western Victoria; the Brigalow country; the farming and wheat belt country running from Queensland through South Australia and into Western Australia; and the Mallee country of Victoria and South Australia.

The first part of the research program is to define and survey eucalypt woodland and forest communities in eastern Australia.

These are in four groups: eucalypt tree communities; lower-growing plants such as grasses, heath and wallum; studies of the coastal vegetation including mangroves, salt marshes and the sand dune plants; and studies into desert country supporting plants such as mulga and other acacias.

The project is an expansion of work Professor Specht carried out when he compiled a book titled *Conservation Of Major Plant Communities In Australia And Papua-New Guinea.*

That work, published in 1974, stemmed largely from his chairmanship of the international biological program which operated 1964-74.

CSO: 5000/7569

PILBARA DAM WINS EPA APPROVAL, WITH CONDITIONS

Perth THE WEST AUSTRALIAN in English 24 Aug 82 p 3

[Article by E. A. Barker]

[Text] The State Cabinet has given the go-ahead for the $50 million Harding River Dam in the Pilbara.

The dam, 23km south of Roebourne, will be operated with the Millstream aquifer which supplies water to the West Pilbara.

The Premier, Mr O'Connor, said last night that the Environmental Protection Authority had reported that the project was environmentally acceptable.

The Cabinet had approved the project subject to management provisions set out in an environmental review and management programme and to additional recommendations made by the EPA.

Mr O'Connor did not say what the additional recommendations were and the EPA report was not available last night.

The review and management programme released in March said that erosion control would be a problem at the proposed site.

Control

Control within the area of fluctuating shore lines was a complex problem not easily solved.

The report said that a soil-conservation specialist would inspect the foreshore area after the dam had filled to assess the effect of wave action on soil loss.

As the dam-water level fluctuated, exposed areas would be inspected and problems identified.

The inspections would be made annually before each wet season where necessary.

Control measures would be introduced to minimise soil movement into the reservoir.

In June the Conservation Council of WA submitted to the EPA that the dam proposal be abandoned.

It said that the reservoir characteristics could only be described as poor.

Mr O'Connor said last night that the project was important.

It would secure water supplies for the region into the next century.

Construction of the 114-million-kilolitre-capacity dam would meet demands up to 2½ times the region's present water consumption at a lower capital cost than any other options.

Water supplies from the existing Millstream aquifer could not be increased without significant degradation of the Millstream ecosystem.

The Government had always acknowledged the environmental sensitivity of this area.

Mr O'Connor said that the aim was to let a construction contract plete the dam by the late this year and comend of 1984.

CSO: 5000/7569

FRANKLIN DAM ISSUE REMAINS IN POLITICAL SPOTLIGHT

ALP-Proposed Alternative

Melbourne THE AGE in English 23 Aug 82 p 5

[Article by Rosslyn Beeby: "Replace Franklin Scheme With Coal-Fired Station, Says ALP"]

[Text]

A coal-powered electricity station would create more permanent jobs for less than a third of the cost of the Gordon-below-Franklin hydro-electric dam project, the ALP spokesman on the environment, Mr Stewart West, told a rally in Melbourne yesterday.

Mr West said the Gordon-below-Franklin project would generate only 180 megawatts of power and provide 30 permanent jobs.

A coal-fired station with a 400-megawatt capacity could be built in the north-east for $300 million and would create 550 permanent jobs, he said.

Mr West was addressing a crowd of more than 2000 at a public rally at Camberwell Civic Centre. The rally was part of a national programme organised by the Tasmanian Wilderness Society to gather support for its plans to blockade the entry of heavy machinery into the south-west wilderness to begin construction of an access road to the dam site.

Mr West said an ALP Federal Government would offer financial help to the Tasmanian Government to build a coal-powered station as an alternative to the Franklin dam. It would also give a specific-purpose grant to the Government to establish a south-west Tasmanian management authority to promote tourism in the area, he said.

The Leader of the Australian Democrats, Senator Chipp, also told the rally there was mounting evidence that other energy sources such as solar energy could be viable alternatives to hydro-electric power by the mid-1990s.

He said several large enterprises had already told the Tasmanian Government they did not require additional power.

"I am confident that the simple supply-and-demand equation will make building this dam ridiculous," he said.

The director of the Tasmanian Wilderness Society, Dr Bob Brown, said the Gordon River Scenic Reserve attracted more than 70,000 tourists each year. This meant it drew as many people as Ayers Rock, he said.

The Federal Government should do everything in its power to preserve the wilderness area, including preventing importation of heavy machinery needed to build the dam, he said.

A Federal Government Minister has told the Tasmanian Wilderness Society that the Liberal Party supports the damming of the Franklin River, the society claimed yesterday.

The society released a letter which it says was written by the Minister for the Capital Territory, Mr Hodgman, in which the Minister says: "I would be less than honest if I did not refer to the fact that the Liberal Party does support the Lower Gordon power scheme."

Until now, the Federal Government has avoided adopting a clear policy on the flooding of the Franklin. The Prime Minister, Mr Fraser, has said several times that the Government considers the dam question to be the responsibility of the Tasmanian Government.

The national liaison officer from the wilderness society, Mr Chris Harris, said in Canberra yesterday the "revelation that the Liberal Party supported the Franklin dam" was a total abdication of its responsibilities under the Australian Heritage Act and the World Heritage Convention.

"Mr Hodgman could only make this statement with the full knowledge and support of the Prime Minister, which means that Mr Fraser has reversed his promise to protect the area which he outlined in 1979", Mr Harris said.

Editorial Slap at Fraser

Melbourne THE AGE in English 25 Aug 82 p 13

[Editorial: "Leadership Needed on Dam"]

[Text] SOME time in the next two months the World Heritage Bureau will meet to decide whether to include the wilderness area of south-west Tasmania on the World Heritage List. The fact that the area has been nominated for inclusion on the list is itself a recognition of its unique qualities. The Prime Minister, Mr Fraser, is on record as saying that in this wilderness area Australia has an irreplaceable asset. This being so, the public might be excused for thinking that the Federal Government would be doing everything in its power to save the Lower Franklin, which flows through the area, from the depredations of the Tasmanian Government and the Tasmanian Hydro-Electric Commission, whose bulldozers are already at work carving out a 70-kilometre access road through to the site of the proposed hydro-electric project on the Lower Gordon.

According to the Tasmanian Wilderness Society, the truth is otherwise. The society has released a letter which it says was written by the Tasmanian MP and Minister for the Capital Territory, Mr Hodgman. In the letter Mr Hodgman is said to have referred to "the fact that the Liberal Party does support the Lower Gordon power scheme". If it is a fact, then the Prime Minister should come out publicly and say so. If not, he should disown Mr Hodgman, or at least the statement attributed to him.

Mr Fraser cannot have it both ways. The wilderness area of south-west Tasmania is too rich in natural beauty to be spoiled, either by State Government crassness or by Federal Government duplicity. It is time Mr Fraser ceased taking refuge in evasiveness, and in the fiction that the proposed dam is a State Government responsibility, and exercised some leadership on the matter, as he did finally on the Great Barrier Reef. The fact is that, like the Barrier Reef, the south-west wilderness area belongs to all Australians and not simply the people of one State. It is a national treasure, and as such warrants the full protection of the national Government and its leader.

Heritage List Issue

Canberra THE AUSTRALIAN in English 25 Aug 82 p 26

[Text] THE Federal and Tasmanian Governments are at loggerheads over a Tasmanian request to withdraw the proposed listing of south western Tasmania from the World Heritage Commission register.

The Prime Minister, Mr Fraser, is understood to be furious about the request.

He and the Tasmanian Premier, Mr Gray, have engaged in a lengthy and frank exchange of letters on the issue over the last few weeks.

Mr Fraser proposed the listing several months ago. It would have south-west Tasmania's environment protected by international treaty. The World Heritage Commission is expected to consider the request in October.

CSO: 5000/7569

PROTOTYPE SOLAR DESALINATION UNIT TRIED IN WEST AUSTRALIA

Canberra THE AUSTRALIAN in English 19 Aug 82 p 3

[Article by Steve Harvey: "Solar Plant Could Bring New Life to the Outback"]

[Text]

REMOTE areas of Australia could be opened up for settlement by the development of a prototype solar desalination unit which was unveiled in Perth yesterday.

Work has already started on a bigger plant that would provide enough fresh water for a road-house in the remote Gascoyne area of Western Australia.

The Western Australian Minister for Fuel and Energy, Mr Jones, who unveiled the prototype, said solar desalination could eventually provide water supplies for homesteads, service stations, hotels, hospitals, construction and mining sites and even towns in remote areas.

The desalination unit was developed in joint venture by the Solar Energy Research Institute of Western Australia and Mobil Oil Australia Ltd.

The system is run by photovoltaic panels manufactured by Mobil's American affiliate, Mobil Tyco Energy Corporation. The corporation has developed a production process which could significantly reduce the cost of photovoltaics.

"The prototype is designed to produce up to 1000 litres of fresh water a day from low-grade mains or brackish water by a simple highly effective process known as reverse osmosis," Mr Jones said.

In small systems and for low salinity water, the reverse osmosis principle would be more economic than other means of desalination.

The second unit would be almost six times the size of the prototype, having a capacity of 6000 litres of fresh water a day.

Although solar desalination is not yet competitive with conventional systems, there is growing international interest in its development because of fuel costs and the anticipated decrease in the cost of photovoltaic panels.

CSO: 5000/7569

TASMANIAN GOVERNMENT REVOKES PARK STATUS FOR DAM ROAD

Melbourne THE AGE in English 13 Aug 82 p 5

[Article by Rosslyn Beeby]

[Text]

The Tasmanian Government has revoked the national park status of a section of the Gordon River Scenic Reserve to allow work to begin on an alternative access route to the Gordon-below-Franklin dam site.

The Hydro-Electric Commission had previously assured the Tasmanian Government that it would not intrude on the reserve, but would improve existing roads leading to the proposed dam site from the north.

The decision opens the way for the Hydro-Electric Commission to ship heavy machinery up the Gordon River into the reserve from Macquarie Harbor and begin building a road through a wilderness area which conservationists claim is one of the world's last remaining utouched rain forests.

The Gordon River Reserve, which forms part of the Wild Rivers National Park, was proclaimed in 1912 and is one of Australia's oldest national parks. It is also part of the south-west wilderness area nominated by the Federal Government for inclusion in the World Heritage List.

About one third of the 4800-hectare reserve has been revoked.

Survey teams from the Hydro-Electric Commission are expected to begin work in the reserve within two weeks. The Premier, Mr Gray, has said that no heavy machinery will enter the reserve until survey work has been completed and debated by Parliament.

The commission claims an access route through the reserve will save up to $100 million in fuel costs and speed up the Gordon-below-Franklin dam project by two years.

The commission initially proposed to build a single road to the dam site, south from the Lyall Highway and east of the Elliott Range. The new plans include a jetty on the Gordon River at Eagle Creek, from which a road could be built through the reserve to link up with the main access route.

Members of Tasmanian's Legislative Council have strongly criticised the revised plans.

The former chairman of the Legislative Council select commitee on future power schemes, Mr Harry Braid, said the commission had betrayed Parliament and the public by with-holding information on the alternative access.

Mr Braid said the commission has assured the select committee that the Gordon River Reserve would remain untouched.

The MLC for Gordon, Mr Broadby, said he would never have supported the Gordon-below-Franklin scheme if he had known the commission intended to intrude upon the reserve.

The director of the Tasmanian Wilderness Society, Dr Bob Brown, said yesterday that construction work along the Gordon River would damage irrepairably one of the world's last remaining rain forest wilderness areas.

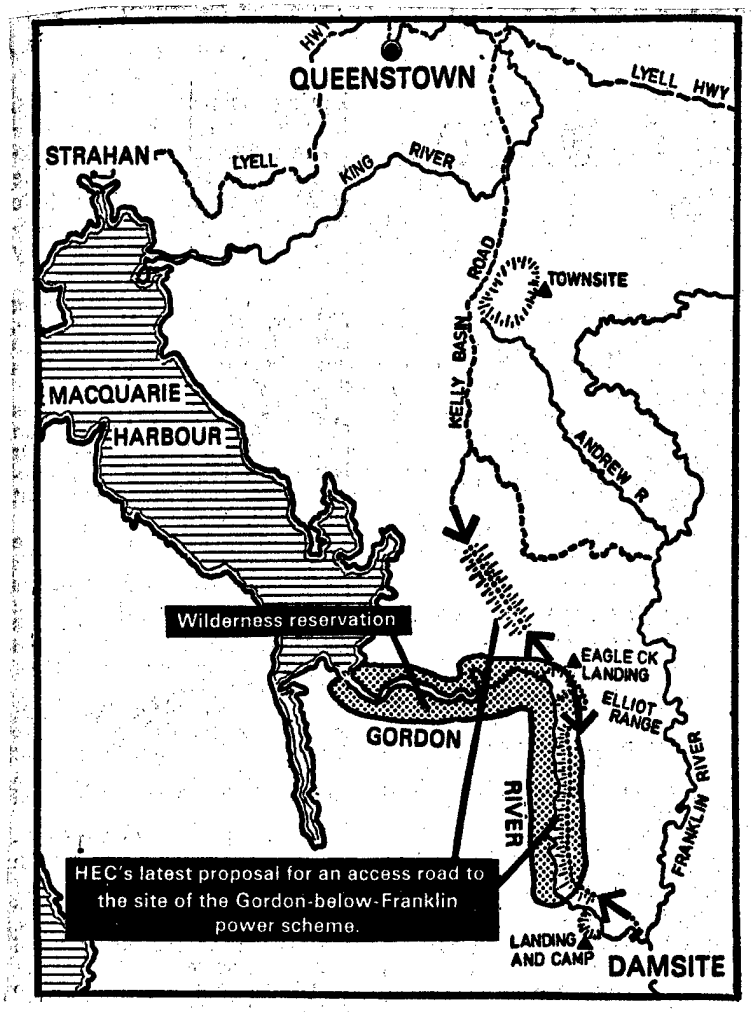
It would also threaten the town of Strahan, whose economy depended on tourist river cruises, he said.

Dr Brown said the Tasmanian Government had "the worst history in Australia, if not the world" for revoking national park classifications. He said 28 reserves and sections of national parks had been revoked by the Government to allow woodchipping and destruction by other Hydro-Electric Commission schemes.

He said he believed the proposals would enable the commission to ship heavy equipment across Macquarie Harbor and down the river to the dam site.

Dr Brown described the alternative route as a deliberate action to pre-empt further attempts to preserve the south-west wilderness.

"The HEC have behaved like Philistines," he said. "By concealing their plans to encroach on the reserve and attempting to deceive Parliament, they have antagonised some of their staunchest supporters."



CSO: 5000/7566

PARRAMATTA RIVER OIL SPILL STIRS CALL FOR GOVERNMENT INQUIRY

Sydney THE SYDNEY MORNING HERALD in English 23 Aug 82 p 3

[Text] The Parramatta River, parts of which were closed over the weekend because of a major oil spill should become a national park, according to the State Member for Ryde, Mr Garry McIlwaine.

Mr McIlwaine called yesterday for an inquiry under an independent chairman into the environmental safeguards for the Parramatta River.

One of the recommendations, he said, should be the dedication of Parramatta River as a National Park.

"The inquiry should assess the damage done to the river by the recent oil spillage and by previous occurrences," Mr McIlwaine said.

Almost 25 tonnes of fuel oil leaked into the river when a Shell barbe ran aground at Archer Point (west of Rhodes) on Thursday night.

The oil drifted for about three kilometres before Maritime Services workers could put booms across the river.

Mr McIlwaine said that the inquiry should recommend an immediate plan of management for the river, incorporating:

Minimum standards for vessels transporting cargo on the river.

Wildlife and marine life protection in cases of emergency.

Environmentally-sound methods of disposing of oil slicks.

Better co-ordination between the existing authorities having a role in the river's management (at present over 20 organisations are involved).

Methods of regenerating and restoring the river's ecology, marine, mangrove and foreshore areas.

"Finally, I firmly believe that the Parramatta River should be handed over to the National Parks and Wildlife Service for dedication as a Parramatta River National Park," Mr McIlwaine said. "This would require legislation, and I will be taking the whole matter up this week in Parliament."

Mr McIlwaine said boat owners who had their craft damaged by the oil spill should claim damages from Shell.

He said hundreds of moored boats had been damaged and owners should have photographs taken of the damage, record it, and lodge a claim. Any they should do it quickly, he said.

The Maritime Services Board has launched an investigation into the spill.

The river was closed for the weekend between Ryde rail bridge and Archer Point, but is expected to re-open tomorrow.

In Canberra, unusually strong language has been used by the influential National Trust to attack the Federal Government's record on preservation of Australia's historical and natural assets.

It has accused the Commonwealth of "systematically destroying" this heritage by under-funding essential programs.

The chairman of the Australian Council of National Trusts, Mr B. H. Parkinson, said yesterday, the Australian Heritage Commission had suffered a real cut in funds and there had been no increase in grants to voluntary conservation groups.

"By its actions the Government is neglecting its national responsibility for the stewardship of those critical aspects of our history and natural areas Australians really want to keep," Mr Parkinson said.

CSO: 5000/7570

BRIEFS

REDUCED PARK FUNDING--Funding for conservation management and national parks has been reduced in the [Federal 1982-83] Budget. An amount of $9.6 million is being provided in 1982-1983, compared with outlays of $4.7 million in 1981-1982. Budget Paper No 1 said the reduction reflect the payment of $5.5 million in last year's settlement of the purchase of the Mudginberri and Munmarlary pastoral leases in the Northern Territory as part of stage two of the Kakadu National Park. The 1982-1983 funding will include $2.9 million for the Great Barrier Reef Marine Park Authority, $5.7 million for the Australian National Parks and Wildlife Service, and $700,000 for nature reserve in the ACT. The Great Barrier Reef has seen an increase of $800,000 following the decision of the government to accelerate the declaration and zoning of sections of the reef's Marine Park. Of the allocation to National Parks and Wildlife, $2.1 million will go to the Kadadu National Park. The Uluru National Park in the National Territory has attracted a special allocation of $1.1 million for operations and management over the next financial year. [Text] [Brisbane THE COURIER-MAIL in English 18 Aug 82 p 13]

MURRAY RIVER ACCORD--Melbourne--The Victorian Government has announced its approval of the new Murray River waters agreement aimed at improving the river's water quality. The Minerals and Energy Minister, Mr White, said that work had started on the necessary legislation, which had to be passed by all signatories--Victoria, NSW, South Australia and the Commonwealth. He said that the agreement was a positive step forward to beat the water-quality problem of the Murray. The agreement requires the River Murray Commission to formulate water-quality goals and standards for the river. It is the culmination of an examination of Murray River management strategy since 1973. [Text] [Perth THE WEST AUSTRALIAN in English 17 Aug 82 p 3]

BEACH EROSION PROJECT--Tewantin--Thiess Contractors has won a $391,530 tender for construction of a rock groyne to help stop erosion at Noosa Heads' Main Beach. The Noosa Shire Council approved the tender yesterday after receiving a report from the shire engineer, Mr D. Sharp. Mr Sharp said the Beach Protection Authority had approved changes to its groyne design to allow rock use proposed by Thiess. The work is part of $750,000 allocated in the council's budget to fight erosion and repair the beach during the next year. The council is concerned about problems at the beach, regarded as one of the Sunshine Coast's major tourist areas. Mr Sharp said the Thiess tender was $41,530 more than the sum allocated in the budget for the groyne. This extra cost could be deducted from $400,000 set aside for beach nourishment. It is hoped the work can be completed this year. [Text] [Brisbane THE COURIER-MAIL in English 21 Aug 82 p 16]

ALP WASTE POLICY--Canberra.--The Labor Party has proposed that a future Federal Labor Government take responsibility for the regulation of hazardous chemicals from the States. Labor's environment and conservation spokesman, Mr Stewart West, said yesterday the regulation of hazardous chemicals and chemical waste by the States was inconsistent, and existing Federal controls inadequate. [Text] [Melbourne THE AGE in English 3 Aug 82 p 4]

AIR POLLUTION RECORD--Sydney ended its longest recorded spell of high pollution readings yesterday when fresh westerly winds dispersed the brown haze that has shrouded the City for the past eight weekdays. Sydney's pollution index yesterday was a low 13. The readings for the eight previous weekdays since August 2 were 47, 58, 55, 75, 53, 69, 54 and 71. Levels above 45 are considered high. A spokesman for the State Pollution Control Commission said yesterday it had been the longest spell of high pollution since the index was introduced in December, 1977. The commission's pollution index is the higher of two readings: ozone levels, an index of the photochemical smog which occurs in summer; and fine particles, which cause winter's brown haze. The long run of high readings has been caused by a strong high pressure system centred over the Tasman Sea which has produced warm stable conditions which have, in turn, resulted in marked temperature inversions. These prevent the mixing of air above the City and hence the dispersal of pollutants from industry, vehicles and backyard fires. [Text] [Sydney THE SYDNEY MORNING HERALD in English 13 Aug 82 p 2]

CSO: 5000/7567

FUND SHORTAGE IMPEDING ANTIEROSION MEASURES

Calcutta THE STATESMAN in English 2 Sep 82 pp 1, 14

[Article by Chandrasekhar Sarkar]

[Excerpts] BERHAMPORE, Sept. 1--The erosion by the Padma, Ganga and the Bhagirathi has assumed such alarming proportions that the district authorities have virtually given up counting villages washed away and those threatened by the rivers. They admit that they have come upon documents with names of scores of villages which no longer exist. Wide areas in this district along the river bank have suffered severe erosion. In a month or two the situation will worsen, the district officials fear.

According to State Irrigation and Waterways Department officials, the Bhagobangola and Jalangi, respectively, erode about 1,150 metres and 810 metres of land annually. The Ganga in other areas has swallowed three km of land during the past 10 years. The officials felt that the barrage at Farakka was mainly responsible for the severe erosion downstream.

The Ganga has shifted course towards right downstream Farakka and towards left upstream of the barrage since 1973. This has created a number of 'charlands'. A report was prepared by Mr Pritam Singh who had surveyed the riverine areas in West Bengal in 1978-79. It was submitted to the Centre for necessary action. The report stated that the approach to the Farakka barrage was far from uniform. It also mentioned the concentration of the flow of water towards the right half of the barrage. As a result, 700 cusecs a ft. run were discharged, against the maximum designed intensity of 500 cusecs a ft. run. Some experts in West Bengal felt that this might have been one of the causes for heavier erosion downstream.

At Sankopara, a small village downstream of the river, dwellers on the banks have been shifting to safer areas taking with them building material they could salvage from their damaged mud huts. The river had already entered the village through numerous breaches in the embankment. Big chunks of earth bearing down huts have disappeared into the river.

The same story of depredation is heard all along the bank of the Ganga between Farakka and Merupur and between Merupur and Jungipur--an area of about 50 km in length.

Paucity of Funds

The Irrigation officials said that paucity of funds was the main constraint in initiating adequate anti-erosion measures. Mr Sital Chandra Dev, Chief Engineer. I. & W.. said that they had studied the riverine areas all along the Ganga from Farakka and felt that anti-erosion steps were needed on at least 94 km of river bank classified "vulnerable". The Central Government had been approached for financial assistance of Rs 193 crores. But it had been turned down by the Centre which thought that the anti-erosion work was the responsibility of the State Government concerned. The Chief Engineer said that it would never be possible for any State Government to take up such an expensive project. Without any aid it would be impossible for the State Government to initiate any scheme that would be really effective. Already the State Government had been spending about Rs 1 crore a year for anti-erosion work in this district.

He said that now the Centre wuld be approached with a scheme for anti-erosion work at Sankopara-Poranpara, Durgapur and Bajitpore where erosion had been threatening the railway lines and National Highway. The distance between the river and the railway lines at Sankopara was about 360 metres. The estimated cost of the project was Rs 19 crores. The State Government had prepared another scheme worth Rs 60 lakhs to save the Jalangi area. There are several other schemes for the district, he added.

Complaint

Engineers said that they had been receiving complaints from the people of the area that the Bangladesh Government had strengthened the embankment in the Rajshahi area with boulders taken from Pakur during the Janata regime in India. Since then erosion near the Jalangi area had been on the rise. They had suggested that the Union Government arrange for a joint inspection of sites on both sides of the Ganga-Padma by representatives of India and Bangladesh as early as possible.

The District Magistrate said that till now there was no programme for rehabilitation of the people who had lost their homes, farm lands, orchards and business units. The district authorities, he said had rehabilitated some people on khash lands. There was no more land now. Some kind of assistance was offered to those who had approached them. But such assistance was not at all adequate. He had asked the gram panchayats to take the initiative.

Efforts

Mr Nani Bhattacharjee, West Bengal Irrigation and Waterways Minister, recently visited the different areas eroded by the Ganga-Padma and the Bhagirathi in Murshidabad an Malda districts. He later told reporters that despite paucity of funds all efforts would be made to take anti-erosion measures. He said that the Centre would be requested to provide funds toward implementation of anti-erosion schemes in the State.

He said that the Union Government should be aware of the fact that the protection of railway lines and National Highways was its responsibility. It should extend adequate financial assistance to the State Government for this purpose. All such plans connected with the central agencies should be financed by the Centre, he remarked.

BRIEFS

AFFORESTATION SUPERVISORY TEAMS--GANGTOK, Aug. 30 (PTI)--The Union Agriculture Ministry, at the initiative of the Prime Minister, is sending high level officers to various Himalayan regions for overseeing the massive afforestation programmes. Disclosing this here, Sikkim Governor Homi J H Taleyarkhan said the officers, of the rank of DIG (forests), would make a verification of plantations done during the last few years and also identify areas of heavy mortality. One such officer had already arrived in Gangtok,the Governor said, while addressing a meeting of the Sikkim United Nations Association on eco-development in the Himalayas here recently. The Governor said deforestation had disastrous consequences and had a chain reaction. Areas susceptible to flood damage had increased from 20 million to 30 million hectares in the last decade and 25 per cent of the land had been subjected to soil erosion. Mr Taleyarkhan said the contractor system should be banned everywhere, as it was in Sikkim, and public consciousness for protection of trees should be roused. Dr Virendra Kumar, consultant (hill regions) Planning Commission, said not even ten per cent of the water potential of the Himalayas had been used up to date. Similarly, the rich flora especially in the eastern Himalayas was not being utilised as a scientific industry Dr Kumar felt. [New Delhi PATRIOT in English 31 Aug 82 p 1]

CSO: 5000/7088

ECOLOGICAL ASPECTS OF LOW-CAL COAL BURNING DISCUSSED

Prague HOSPODARSKE NOVINY in Czech 23 Jul 82 pp 8-9

[Article by Engr Miroslav Kubin, CSc, general manager of the Concern Ceske Energeticke Zavody: "Substandard Fuel and Supplying Heat"]

[Text] The CSSR does, and will in the future, depend to a greater extent on substandard coal with a higher sulfur content and more ash residue for generating electric energy and heat. The average heat value of the fuel used in the power plants is constantly declining, by approximately 1 percent per year, and was about 10 MJ/kg (approximately 2,400 kcal/kg) in 1981. As an example, the average caloric value of the fuel used in 70 percent of the 49 Ceske Energeticke Zavody plants was below the planned mean. The ratio of consumed substandard fuels rose from 1 percent in 1976 to 24 percent by 1980. Other thermal and physical qualities are also deteriorating.

The fuel shortages force us to use the so-called substandard "N 2 Group" with heat values of 5 to 7.5 MJ/kg. This results in considerable technical and economic problems; therefore, a number of measures are being implemented to enable us to burn coal of worsening quality in the future. Some of these issues have been incorporated into the state goal-oriented programs to make consumption and utilization of fuels more efficient (development of fluidized bed combustion).

Economic Utilization Problems

The developments in the fuel and energy systems affect all three planning subsystems (the branch plan; the regional plan, ensuring the overall integration of the national economic plan locally; and the territorial plan aimed at the protection of the ecological systems (earth-water-air)). Although the economic and social impact of the individual subsystems varies considerably, we can only accept a solution which, using economic efficiency calculations will result in minimizing the costs (min. $\Sigma (N_1 + N_2 + N_3)$!).

The costs of the individual branch economic plans, to achieve a fuel and energy equilibrium and effect structural changes to make them less energy intensive relative to the national income formation, are considerable. Although the cost calculations relative to the fuels structure and rationalization of the resources as well as consumption are not yet complete, preliminary

studies by the economic entities (i.e. Research Institute of Fuel Economy, Energy Research Institute, and the Czech Energy Enterprises) point to considerable cost increases in mining, transportation, and in the use of substandard fuels.

The CEZ Concern [Ceske Energeticke Zavody], for example, made projections of the economic impact of the various types of fuel for 1985 which conclude that power generating units of 100 MW or more will increase fuel consumption by 1.3 percent, that energy consumption in fuels will go up by 4,010 TJ, and that overall power generation will drop by 358 GWh due to limited fuel supplies. The reductions in the peak power output represent 519 MW. The costs for the expanded scope of repairs will also increase. Redesign of the present facilities to burn substandard fuels will require considerable investment while the temporary shutdowns of individual units will add to the operating costs. Correcting for the reduced reliability of the fuels, disposal of larger quantities of ashes, and measures to reduce air pollution will also add to the expenses. And, finally, we have to include the nonproductive burden of fixed cost and reduced revenue from electric power.

A preventive program for refitting virtually all generating units in excess of 100 MW during the 1984-1988 period is being prepared to make possible the burning of coal with average of 9 MJ/kg (2,100 kcal/kg), together with a supplemental program of using the fluidized bed process to burn coal with still lower caloric values. The situation is similar in smaller (heat) generating plants where, beside the transition to substandard fuels, the liquid fuels must be replaced by other combustibles which are also rather costly. By 1990, the consequences of not implementing these measures would become critical, threatening the entire energy supply.

The second subsystem problems, to solve the impact arising from the implementation of transition in the fuel and energy development, are sufficiently well known and the costs can be relatively easily calculated on the basis of regional development plans. Especially in the North Bohemian kraj, the significance of the measures taken ranks above the expenses related to measures provided for in the branch plan subsystem. In the territorial plan subsystem, representing the public, which acts primarily to protect the ecological system: earth-water-air, we are concerned with the optimal spacing of substandard fuel users, wasteless technologies, as well as the implementation of measures (for example, desulfurization of products of combustion) which reduce the water, air, and soil pollution with solid and gaseous waste, heat and noise pollution abatement, encroachment on agricultural land, and changes in the landscape. A detailed analysis of the ecological aspects; specifically, purity of air and the effects of burning substandard fuel, particularly for heating purposes, is provided below.

Coal Consumption and SO_2 Air Pollution

The total amount of heat generated in individual years by burning fossil fuels can be classified as follows:

--heat used by the electricity and heat generating utilities;

--heat used for other industrial purposes and heating, but excluding any generation of electricity in enterprise power plants;

--heat used by the municipal housing authorities in individual furnaces and central heating units.

Provided the fly-ash separators work efficiently and the sulfur content varies only slightly from the standard then the total amount of air pollution is proportional to the total fuel consumed.

It is remarkable that the "other consumers" use greater amounts of heat from fossil fuels; that is to say, that the utilities are practically an equal to all other resources in SO_2 polluting even considering the greater sulfur contents of coal used to generate power. The disadvantage of a high concentration of pollutants (smokestacks) in a small area in the power generation, as opposed to more dispersed number of smaller industrial sources of pollution, is effectively counteracted by higher smokestacks. This results in relatively only small amounts of ground level pollution on the CSR territory.

The problems of solid pollutants caused by use of substandard fuels in the power generating industry can be assumed to have been resolved. By installing highly effective and reliable electric separators during the Seventh Five-Year Plan refitting program, we will be able to reduce the amount of solid pollutants to below the 1955 levels (even while generating greater amounts of heat and electricity and thus using larger amounts of coal and substandard fuels). As a result greater use of nuclear power, the effects of power generation on air pollution will continue to drop.

Contribution [of Various] Sources to Pollution

Based on studies on quality of fuel, heat consumption, and the relative size of the utilities, industry, and housing developments smokestacks, the pollution amounts of each were graphically illustrated. The conversion of the air pollution levels to ground pollution equivalents has been accomplished through the so called "pollution effectivity index" which was arrived at from the basic calculations of pollutant dispersal models. The pollution effectivity index is directly proportional to the amount of pollutants and inversely proportional to the square of the height of the scaled value of the smokestacks of all given sources [of pollution] of the branch in question.

This relation explains why the effect of ground level pollution is many times worse, even with a lower overall absolute amount of SO_2. Physics can solve for this effect for a region, the significance for larger areas is strictly hypothetical.

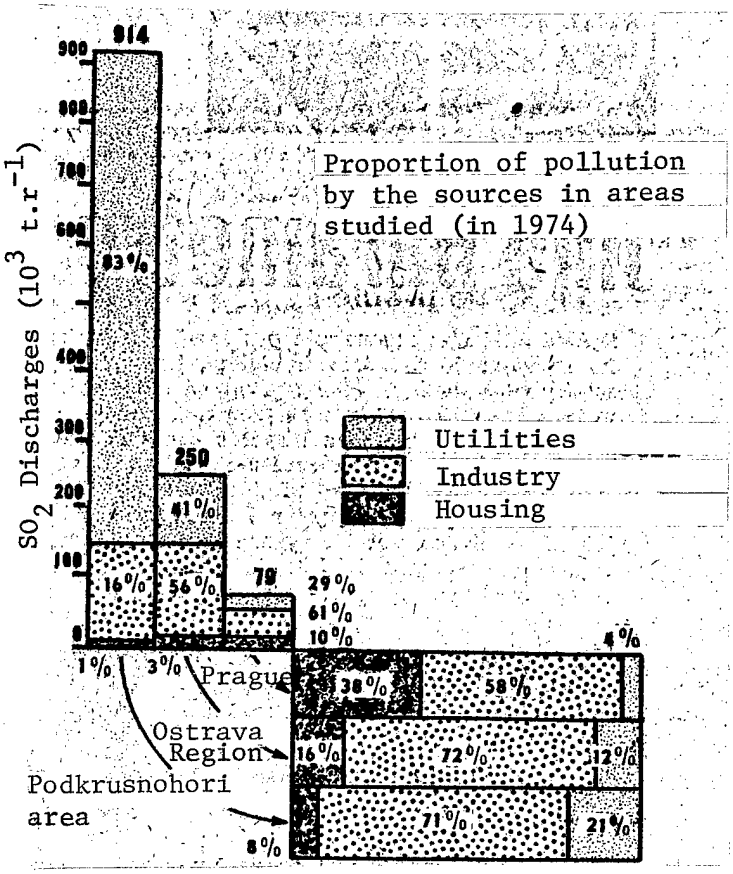
Based on the relations of the dispersion models used, the proportion of pollutant effectivity under identical conditions of atmospheric diffusion reflects the ratio (mutual relation) of maximum concentrations originating from the substitute scaled value smokestacks of the given branch. (In

physics, this maximum is found at a distance from source directly proportional to the height of the smokestack).

In spite of the absolute differences in the annual totals, there has been no substantial change in the electric utilities' contribution to either air or ground pollution (an average of 7 percent) in the CSR as a whole. It is interesting to observe the relative increase in the effects of the local furnaces (municipal housing developments) as a result of the increase in the height of the utilities and industrial smokestacks, although there was no change in the number of local furnaces. As it happens, one-family housing units burning similar sulfur containing coal like the industry, or other types of waste bituminous coal, constitute more than one half of the total housing units in CSR.

Even in areas where industrial sources predominate and in the greater Prague area, the local furnaces account for considerable amount of pollution. In the Ostrava and Podkrusnohori industrial complexes, the proportion of power utilities is well above the republic average. (Figure 1).

Figure 1. Composition of the Sulfur Dioxide Emissions and Their Ground Level Effects



Due to the uneven distribution of sources [of pollution], different types of pollution and background effects, as well as orographic and climatological conditions in individual areas, it is not very easy to convert the percentage contribution of SO_2 emissions to concentrations at ground level under average conditions in absolute terms.

The data for the 1980 studies of the effects of ground level pollution are derived from the emission effectivity of individual sources; this is greatly dependent on the height of the scaled smokestack values. The scaled value height of the electric utilities' smokestacks are exact data; they have been determined from the actual heights of the CEZ sources smokestacks and their actual level of emissions in the year 1980. The scaled value heights of industrial and municipal housing smokestacks have been obtained from only a representative sampling of the sources. This could lead to slight discrepancy in the proportion of utilities contribution to pollution. While at the extremes, these estimates of scaled values could change the amounts of pollution, the utilities do not contribute more than 10 percent.

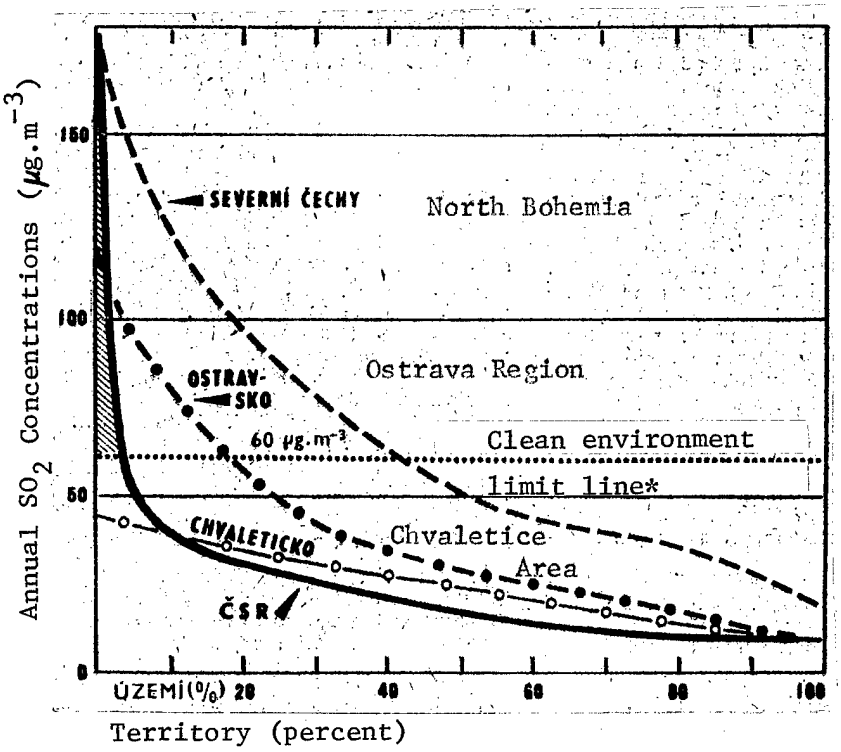
Although these relations may come as a surprise to many readers, they are similar to findings in other countries (West Germany, England, Sweden). Looking at it another way, there is evidence that in the past we have permitted large-scale ground pollution overloads, particularly in the North Bohemia kraj.

Cumulative SO_2 pollution curve on CSR territory and selected areas (Figure 2) is based on ground pollution values (obtained from CHMU [Czech Hydrometeorological Institute] Yearbook) from which ground pollution levels for individual okres have been derived. In cases of high pollutant concentrations, areas smaller than okres were related to the ground pollution values.

The slope of the ground pollution curve on the CSR territory is characteristic of industrially developed nations. Only a relatively small area of CSR (3 percent) has SO_2 concentrations in excess of 60 g/m^3 (a level established by the WHO as a clean environment limit in the annual evaluation of the various concentrations). This saturation level is located in the industrial complexes of North Bohemia and Ostrava and in the Prague Region. From the 75 okres outside of the Prague area, only 5 appear in the curve apex: Chomutov, 3 locations; Most, 2 locations; Ostrava, 2 locations; and Karvina, 1 location in the okres. A substantial part of the population resides on territory with satisfactory levels of air purity. The background [origin?] values correspond to the orographic and climatological conditions of Central Europe.

Nevertheless, local peculiarities of industrial complexes are reflected in their ground pollution levels. Particular differences are notable in the Krusnohori area where a major part of the territory and a substantial proportion of the population is exposed to effects of polluted environment. The pollution background here is significantly higher. The conditions in the Ostrava region are better. The industrial activity in the area of the Chvaletice electric utilities, including the direct effect, does not substantially pollute the environment in this region. There is only a minor increase in the background.

Figure 2. Cumulative Concentrations on CSR Territory and Selected Areas (1978 Data)



CSR Territory: 78,863 km^2--North Bohemia: 4,424 km^2 (okres Chomutov, Most, Teplice, Usti nad Labem, Louny, and Ceska Lipa)--Ostrava Region: 1,835 km^2 (okres Ostrava, Frydek-Mistek, Karvina)--Chvaletice Region: 5,610 km^2 (okres Pardubice, Hradec Kralove, Chrudim, Rychnov nad Kneznou, Kutna Hora, and Nymburg).

*Value recommended by the World Health Organization (WHO).

Solving the Present Problems

The problem is elimination of the sharp peak of SO_2 ground pollution levels (Figure 2) and, in this connection, a technological and economic evaluation of the following courses of action leading to improvements should be made:

--increasing the dispersion of pollutants through use of high smokestacks;

--implementation of dual-fuel systems;

--introduction of excessive pollution warning systems and controls of industrial pollution;

--fluidized bed process with partial desulfurization;

--desulfurization of products of combustion;

--gasification of coal with high sulfur content and desulfurization of the [resultant] gas;

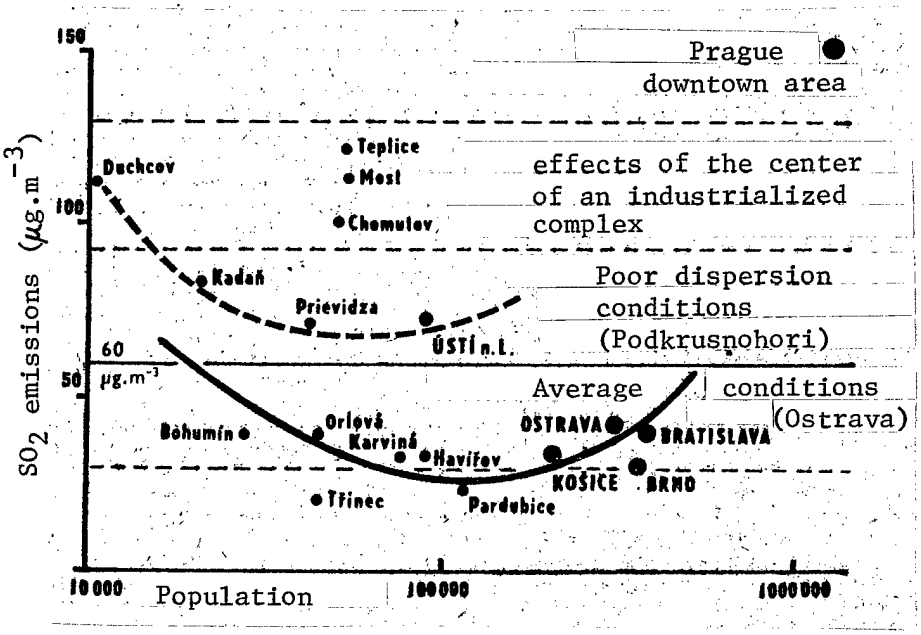
--dispersal of the sources of pollution, increasing the electric utilities loading outside of and reducing generation of electricity within the North Bohemian region;

--introduction of central heating based on cogeneration or use of gas and electricity for heating.

Although the last two methods have the greatest effect on the ground level pollution, they have not been studied in CSSR in any detail. The regional heating systems have been considered mainly in terms of overall conservation of primary resources. That is why we are going to expand on this, in our opinion most effective approach [to environmental protection].

Based on (CEZ, MLVK [Forestry and Water Management Ministry], CSR) studies during the past 10 years, we can come to the following conclusions: The ground pollution levels have been reduced considerably in areas with regional heating systems (Figure 3) indicated by the curve showing the relation of annual ground pollution amounts in municipal housing areas to local orographic conditions against the background conditions of air pollution.

Figure 3. Annual Sulfur Dioxide Pollutants According to Population (Measured by the Czech Hydro-Meteorological Institute, 1975)



From the distribution of these three values, three zones of influence are evident: local diffusion conditions, effects of the industrial complexes with surface coal mining and the effects of municipal population centers. The slopes of the curves show a significant low in cities with populations

of about 100,000 with the largest concentration of regional heating systems. Ground pollution is increasing in smaller towns due to individual coal heating units (in contrast to foreign countries where burning of light oils reduces the pollution). Pollution is also increasing in larger cities due to the [greater] industrial concentrations [there].

Figure 4. Heat Supply to Chomutov and Annual Sulfur Oxide, Solid Aerosol (T.A.) and Dust Fallout Concentrations During 1971-1980

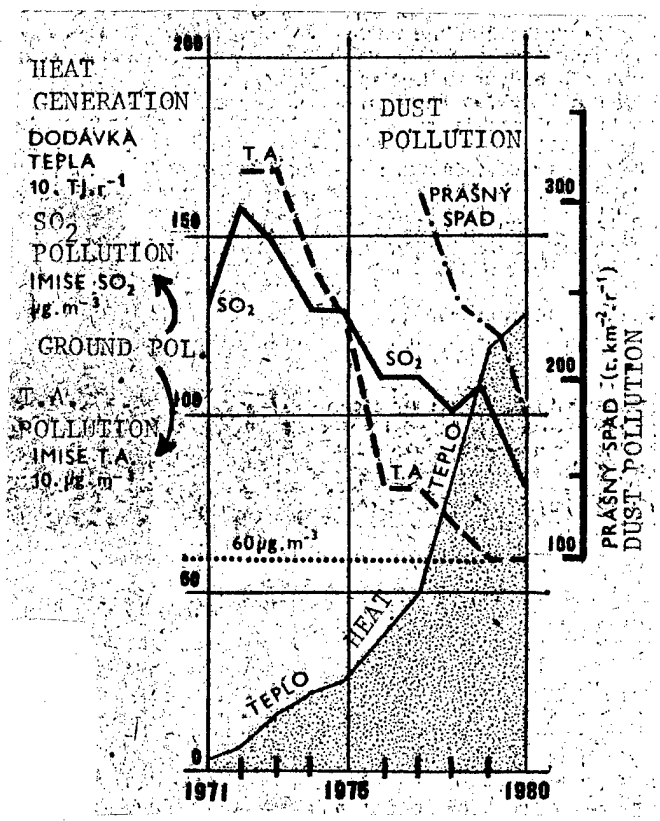


Figure 4 shows a specific locality where regional heating has been introduced. It relates the type of heat supply in Chomutov to the measured annual concentrations of SO_2, solid aerosols, and dust fallout. (Ground pollution is being measured at one of the Chomutov city stations). The Chomutov results confirm that [overall] ground pollution has been reduced by about 50 percent. There has been an even more significant drop in the solid particle air pollution (down to about 30 percent of the initial data) due to the regional heat supply system. For purposes of comparison, ORGREZ [Organization for Streamlining Power Plants] conducted experimental measurements with the use of a Coulograph device in two sections of the town one of which was on the regional system while the other was not. The results show that the section with central heat supply has only one-half of the pollutants of the other section. The apparent effect of the local heating has also been dilluted by the effects of the cleaner air from the centrally heated section.

A comparison of the regional heating system and high smokestack effects on the air quality was also made in Pardubice. The change was compared on the basis of measurements before the regional heat supply was introduced and after its introduction. The results were then compared to the theoretical calculations of the high smokestack emissions of the chemical plants Synthesia in Semtin from 100 to 300 meters. The comparison shows a substantially greater effect of the changeover from local heating to regional heating systems in all parts of town. The average ground pollution during the heating system (October-April) showed a reduction to 40 percent of the initial measurements. The higher smokestack by itself would have reduced the pollutant concentrations only to 70 percent. The relationship of SO_2 ground pollution to the extent of regional heating in the cities of the Ostrava region is based on CEZ (ORGREZ) pollution measurements expressed as a 3 year average and shows similar results.

Thus we may conclude that the transition to regional heating systems and liquidation of the low polluting small sources is absolutely the most effective way to reduce pollution at ground levels while also being the most economical one. It provides a simultaneous solution to two problems, conservation of primary sources of energy as well as optimalization in the cooperation of regional, branch, and territorial planning.

Effects of Individual Measures

--reduction of SO_2 emissions in the Podkrusnohori area can be estimated as follows:

Desulfurization of the combustion products of one 200 MW (50,000 t/r) unit, by about 5 percent;

lower annual use of electric power stations (an average of 75 percent of current generation--14,000 t/r), by about 14 percent;

decommissioning of the Tusimice I utility (about 90,000 t/r), by about 9 percent;

cogeneration with savings of 170,000 tmp (14,280 t/r), by about 2 percent;

eventual redistribution of sulfuric fuels (20,000 t/r), by about 2 percent.

--the reduction of emissions can be described as follows:

Current ground level pollution, expressed in annual terms as SO_2 concentrations, in the entire Podkrusnohori region is 75μg/m^3 (by Podkrusnohori we understand the four basin okres), the cities show higher levels of 80 to 130μg/m^3, while at the Krusne Hory mountain crests it reached up to 170μg/m^3. When anti-pollution measures are implemented, we can expect a reduction in the average annual levels of SO_2 emissions in this region to 60μg/m^3, in industrial population centers to 70 to 100μg/m^3 (especially under the effects of centralized heating systems), and at the mountain ridges to 130 to 150μg/m^3 (due to reduced utilization of electric power plants and decommissioning of Tusimice power station I).

Supplementary Remarks

So far, we have described primarily the ground level pollution and its effects on the population and its health (particularly in the cities). However, for the purpose of evaluation of the needed measures we also need to know for our decision model, in addition to the emission levels and the dissipation and ground pollution condition of an area or individual object, the effects on the agricultural crops, animal production, and forest management.

The effects of desulfurization of combustion products at ground levels and on the population, with the exception of effects of inversions, are minimal. On the other hand, the effects on forest management in the case of North Bohemian kraj, due to parallel winds (the length of Krusne Hory) as well as the fact that the smoke from the North Bohemian Electric Utilities trails upward and starts to dissipate at 600 meters (300 meters of the smokestack plus 300 meters of thermal rise), that is at the mountain peaks, are considerable. The horizontal (air) distance is small, roughly 10 kilometers, and pollution concentrations reach 170 micrograms/m^3. The existing coniferous cover monoculture and the problems associated with it further complicate the situation. A lasting solution to these problems can only be achieved by reducing the generation of electricity here and increasing the power plant utilization in other regions, desulfurization of combustion products, or through the use of fluidized bed combustion.

The fact that desulfurization itself results in 8 percent increase in electricity consumption cannot be considered to be negligible; in the case of desulfurization of all units in excess of 100 MW each in the Podkrusnohori area it means that additional 400 MW of power are needed just for this purpose. Enhancement of the low calorie coal through use for electricity generation is probably the best protection against ground pollution available. If we were to use all of the primary coal resources to generate electric power (instead of the 50 percent currently used for industry and households) it would contribute substantially to cleaner air.

Furthermore, cogeneration brings with it reduction in the specific per kWh fuel consumption, reduces total coal consumption and thus, automatically, cuts down on SO_2 emissions. Streamlining of the energy consumption and a greater use of renewable resources, particularly the use of heat pumps, are some of the effective methods for cleaner environment.

While the above measures, for example, centralized heat supply, higher smokestacks, liquidation of local coal heating devices, etc., have an unquestionably positive and quantifiable effect, the problems of dispersion, particularly long distance dispersion of pollutants and their effect on agriculture and forestry are still subject to scientific discussions and the conclusions of the individual research centers (whether here or abroad) differ substantially. There are two basic processes to remove SO_2 from the air; either by a chemical reaction in which the substance is changed but the resulting impurity remains in the air or through a self-cleaning process of removing the impurities from the emissions. Some of the more significant methods are:

--sedimentation (so called dry sedimentation on top of the soil, buildings, and vegetation);

--wash-outs in the cloud (the most effective removal of SO_2);

--a microphysical process (in effect through "making of rain" or "rain-out");

--wash-out of SO_2 during a rain (a "wash-out" under the clouds, which is less effective).

The SO_2 wash-out half life is about 8 to 12 hours at altitudes of 1,000 to 2,000 meters. At a distance of about 100 kilometers, the SO_2 concentrations are diluted to the background value. With growing removal of solid particles from the air (even with doubling of electric power generation, solid pollutants were reduced to one fourth due to use of highly effective electronic filters) the amount of dry sedimentation is increasing. The ground level mixing of gases, that is from low altitude emissions in our cities, leads to high SO_2 concentrations as well as a rapid sulfate sedimentation damaging the buildings (lime is changed to plaster). As a result of SO_2 removal from the atmosphere, the rain water pH value is reduced to a reading of 4 which has a particularly bad effect on soils with low lime content.

Actually, the effects of long distance dispersion and, especially, the proportions of low and high altitude emissions in this phenomena, have not yet been adequately researched. While there are damages to forest covers in the Krusne Hory, Jizera, Beskydy, and Krkonose mountains, the explanation on the basis of emissions causes "considerable difficulties." It is also a fact that a periodic appearance of the spruce budworm can be related far into the past and before the appearance of electric utilities.

The problems of soil acidification, particularly soils with low lime content, and the consequences of coniferous monoculture have several explanations. Foreign scientists are searching for answers to different phenomena and anomalies in specific natural locations. It has been clearly shown that the neutralization of flue exhausts is economically more beneficial than desulfurization since the fallout can basically be regarded as agricultural fertilizer. Even a subsequent neutralization by lime, as has been calculated, comes to about 5 to 10 percent of the cost of combustion product desulfurization.

Experiments with effects of artificially increased SO_2 concentrations on agricultural produce have shown that the lower limits of tolerance are considerably higher than generally assumed. In any case, given the same amounts of SO_2 concentrations in an area, for example in the fields of several JZD's [agricultural cooperatives], the effects of type of cultivation, and other factors had a considerably greater effect on the yield than the SO_2.

Similarly, its continued effects on the flora and fauna are subject of intensive research with contradictory results as far as damages are concerned. It has been shown that a certain excess of sulfur is harmless for the soil.

The sensitivity of the various types of vegetation fluctuates within a fairly large range and is obviously related to the occurrence of other potentially harmful substances in the atmosphere (synergic effect). No definite conclusions have been reached in practice as to the effects on the plant varieties in the given environment considering the local climatic conditions, agricultural methods and extensive use of agrochemicals.

The cause of the damages is most likely a disruption of biological (ecological) balances and the resulting impairment of the plant organisms. There is an inadequate emphasis on prevention, i.e. adaptation of different production orientation by agricultural organizations (structure of production) relative to the polluted environments in the exposed areas of the country.

Foreign experts have concluded that environmental protection is not a "planar matter" but must be organized in (municipal and industrial) population centers. Economic considerations point to better dispersion of the pollutants through higher smokestacks, the highest possible altitude at which they are mixed with the air, and new measures in the technological processes prior to the desulfurization stage of combustion products. More attention needs to be given to low altitude sources of pollution, particularly in industry and transportation.

As has been verified by measurements and appropriate technical and economic claculations, the reduction of ground level pollution by greater use of the regional heating systems is ecologically and economically the best method and should be given highest priority in the implementation of the Set of Measures.

As can be seen from the analysis of the contribution to air pollution by the electric utilities, its effects have come to the forefront only in a historically short period of about 50 years as the share of the use of coal burned by the power industry increased since 1950 by a ratio of 1:2.5 and by the year 2000 will gradually return to its original share as a result of construction of nuclear power plants which will take over most of the electricity generation and, partially, also of heat. This will then shift much more of the problem toward the industrial and housing pollution where we will have to pay more attention to the reduction in the ground level pollutants. Because in excess of 50 percent of primary resources is used in the low potential heat generation, it will be expedient to invest in the changing of the structure of the existing heat supply systems.

In view of the increasingly limited amounts of fuels available for the power generation after 1990, it will be possible, through a more intensive utilization of electric utilities outside the North Bohemian region while reducing it in Northern Bohemia, to contribute significantly to the solution of environmental problems.

10,501
CSO: 5000/3020

BRIEFS

ANTI-SOOT ACTION--The Holland America shipping line has spent $75,000 to try to reduce soot emission from the Volendam and Veendam, it was revealed yesterday. The money is for a new type of fuel to be used during the remainder of the cruise ship season, magistrates court was told. A spokesman for agents Harnett and Richardson said later that a higher grade fuel had been powering the ships since July in an effort to cut down on the smoke nuisance which had led to a number of complaints in Hamilton and St. George's. "It was done at the request of Government to try to find a solution," he said. "Nothing will cut the smoke out completely but there should be less soot flying around as it burns cleaner." In court, charges against Harnett and Richardson that the Volendam and Veendam emitted offensive smoke last month were adjourned until October after Senior Magistrate the Wor. Gerald Price heard that a witness from Marine and Ports was out of the Island. Separate charges against the two ships are now to be heard on October 12 and 13. [Excerpts] [Hamilton THE ROYAL GAZETTE in English 25 Aug 82 p 1]

CSO: 5000/7568

BRIEFS

DESILTING PLAN--A programme of de-silting the three miles of canal-way along the Rio Cobre and removing aquatic growth which reduces its capacity, is to be undertaken from a sum of $50,000 allocated by the Ministry of Local Government. According to a JIS release, half of the amount will be spent on the de-silting programme and the other half will be used to carry our repairs to the canal bank. Information on the plan to maintain the Rio Cobre Irrigation Works, was given by the Hon. Enid Bennett, Minister of State in the Ministry of Local Government following a tour on Aug. 23 of the system, arising from representations made last week by cane farmers from the area. The Minister appealed to residents along the canal not to bathe in the water, as some of it was also used for domestic water supply. She also expressed dismay at the number of animals allowed to roam the banks of the system. [Excerpt] [Kingston THE DAILY GLEANER in English 31 Aug 82 p 5]

EROSION STUDY--The Natural Resources Conservation Department (NRCD), of the Ministry of Mining and Energy is investigating the erosion of Sunset Beach in Montego Bay. The NRCD is investigating the reason for the erosion of the beach with a view to finding a solution to the problem. According to the NRCD, between 80 and 90 percent of Sunset Beach had eroded and other beaches along the Coast, as far west as Walter Fletcher Beach, were similarly affected. Cornwall Beach is also suffering from erosion, while Jack Tar and Doctor's Cave, although not threatened with the loss of beach, are experiencing migration of sand westward. Preliminary analysis by the NRCD has indicated that this phenomenon could be due to a shift in the wind from an east north-east to easterly direction, with winds being stronger and of longer duration. And this, the NRCD suggested, could cause the absence of compensating westerly winds or wave to return the sand to the area from which it was removed. The NRCD has sought the assistance of the National Meteorological Office in its investigation to obtain data on overall wind movement in the region and to work out ways of negating the problem being experienced. The National Met. Office is also assisting in a long-term study to determine whether it is a cyclical phenomenon. [Text] [Kingston THE SUNDAY GLEANER in English 29 Aug 82 p 1]

CSO: 5000/7568

SOLUTION TO BARDAWIL LAKE FISHING PROBLEMS SOUGHT

Cairo AL-AHRAM in Arabic 12 Jul 82 p 6

[Article by Ahmad 'Abduh and Ahmad al-Tabarani: "Straits Are Choking Bardawil Lake; Three Million Pounds Required to Revive Lake; Straits Have Not Been Cleared for 12 Years, Sand Deposits Cut Lake Off from Sea"]

[Text] Bardawil Lake, which has returned to our control to share, with the other lakes scattered across Egypt, in providing the fish which this ancient lake is known for...this same lale is now suffering from problems that are about to smother it and destroy all the hopes that it would provide a livelihood for 3,000 fishermen and their families who live on its bounty...the yield from this lake could do its share to provide protein for the Egyptian market....

How will Bardawil survive the ordeal threatening its life? What do experts require to bring it back to life?

On the way to al-'Arish, you will see Bardawil Lake, with its eternal history, its rare fish, its abundant yield and its area of 168,000 feddans.

The view is amazing...beauty surrounds the area, quietness embraces it and there is no sound except the voices of fishermen who work on the lake and who now number about 3,000. This amazing view and captivating beauty, the daily yield of fish--all this is now threatened by the difficulties the lake is going through.

Muhammad Yusuf 'Abid, chairman of the committee managing the lake, lays out these problems, saying, "Throughout the occupation, Bardawil Lake was subjected to surprising thpes of abuse, since the fishermen did not clear the straits for more than 12 years, but were content each year with digging a small channel in the middle of the lake, no more than 50 meters wide and 3 meters deep, which caused the amount of sand deposits in the entrances to increase, all but closing them and cutting the lake off from the Mediterranean Sea."

With the return of peace and Egyptian administration to the area, many attempts have been made to clear these straits....

Brig Yusif Sabri Abu Talib, governor of northern Sinai, tried to dredge the straits by agreement with al-Timsah Ship Building Company. A dredge was brought in, but was small and not suited to the circumstances that these harbors were subjected to and are still going through. Large dredges had to be built to specification, and two such dredges were contracted for.

It was then agreed with the Egyptian Dredging Company that they would send a large dredge capable of clearing one strait in two or three months at the most.

The chairman of the management board says that these efforts require a great deal of financial support. A small part will come from the Ministry of Agriculture (the Bure4u of Fishing Resources), which has given 1/2 million pounds to be paid to the dredging company.

We described the circumstances at the lake to Engineer Hasballah al-Kafrawi, Minister of Reconstruction, Housing and Land Reclamation. He promised to meet our requests, send a group of advisers headed by Dr Hasan Isma'il and finance the implementation of the recommendations of this study. No one has arrived yet to carry out the study, nor has any money been authorized.

The lake requires at least 3 million pounds, according to the chairman of the management board, to repair the piers and extend them 30 meters into the sea in order to protect the straits from deposits for 10 years. It will not need to be cleared every year, but only every 3 or 4 years.

The lake also needs a study of its salt level, depth, vegetation and the most suitable methods of fishing.

Fishermen's Negligence Causes Fish to Spoil...!

Mr 'Abid continues, "The lake is now considered exhausted because nets were used that did not meet specifications. The governor issued instructions that nets were not to be used and laid down rules for the periods when fishing is permitted in order to preserve the stock and give the lake a chance to improve. The most important thing is to clear the straits.

Before 1967 about 200 boats were working for a contractor on the lake who paid the government a specific amount and managed this operation for his own profit. However, during the 12 years that the Jews were in the area, the lake was filled with fishermen and boats, and the situation is now a political one of top priority because it is impossible to get the approximately 3,000 fishermen, all of whom are licensed, to leave and to prevent them from working in the lake. There are also around 1,000 motorized boats in the lake. We have stopped issuing licenses for new boats.

The chairman of the management board insisted that the fishermen cooperate with him by not laying their nets at sunset and pulling them in during the early morning, which causes the fish caught in the nets in the early evening to die because they cannot live there until morning.

How is the Yield from the Lake Being Handled?

The chairman continued, "The production of fish in the past season was taken by the Egyptian Fish Marketing Company 5 days a week. Some companies were formed by aged fish merchants in the governorate who took the yield for 1 day every week to sell and live on. The Egyptian Company is getting from 6 to 20 tons daily."

The Company does not want to increase its prices over last year. We submitted our prices to the food security companies, which approved them, because we need money to develop the lake.

The food security companies in the governorates do not have the facilities to transport the fish from the source, and there is great risk in delivering it to them because it spols quickly, and we do not have refrigerators equipped to keep the fish for a long time.

The problem facing us is that of marketing, because our fishing season, according to the chairman, is 8 months with a yield of 2500 tons, and fishing is impossible for 4 months, from the middle of December to 15 April.

Exporting Part of the Yield Would Solve Our Problems

Brig Yusif Sabri Abu-Talib, governor of north Sinai, speaks about the best solution to provide the money necessary to develop the lake, "Part of the yield must be exported, specifically the 'danis' fish, which enjoys world-wide fame and can bring as much as $10 per kilogram."

The governor of north Sinai also says, "The lake's yield represents no more than 2 percent of Egypt's total production of fish, and we need to export only 500 tons, less than 1/2 percent of Egypt's production. This will not cause any problem in providing our domestic requirements, but will increase the income of the fishermen, who with their families number about 200,000, and will also bring hard currency that would enable us to buy equipment to maintain and develop the lake, repair and lengthen the piers and import a fish known popularly as 'al-marjan' with part of the return."

The governor adds that he has submitted a request to the minister of supply that approval be granted for exportation of a part of the yield.

9882
CSO: 5000/5022

FIRST OIL SPILL IN THE RED SEA

Cairo AL-AHRAM in Arabic 4 Aug 82 p 3

[Article by Lamis al-Tahawi]

[Text] Forty-eight hours later engineer 'Izz al-Din Hilal, the oil minister, accompanied by a party of pollution removal experts fly over the Red Sea coast to see the effects of the pollution caused by the crude oil leak from a tanker was taking on oil at al-Ghardaqa. The oil minister will make the same trip on Sunday to assure himself that the Red Sea coast is free from pollution.

What happened was that a tear in the hose carrying crude oil to a tanker from the shore resulted in 17,500 barrels of oil leaking into the Red Sea in 15 minutes, i.e., about 2500 tons of oil turned the beach at al-Ghardaqa and the area behind it into masses of oil mixed with sand.

This was the first accident of its kind in Egypt in the course of a trip from work in oil fields in 57 years.

It may appear unusual for the region but compared with what happens in [other] regions of oil exploration and production, it seems to be quite common.

The dredges and the entire pollution removal apparatus set out from the Red Sea coast.

An internationally known expert who took part in removing the pollution that followed the accidental sinking of the AMOCO CADIZ off the Spanish coast came to Egypt and is now working with Egyptian experts in cleaning up the Egyptian coast.

They called for this expert after an initial attempt was made to clean up the beach when it became clear the operation would take a long time. This method involved moving the coagulated oil from the beach to an isolated place, sprinkling the beach with clean new sand, and actually covering the part in front of the governorate building and houses of the officials on the sea with sand. The tractors are still working.

Continuous meetings--from the day the disaster occurred until today, i.e., for 4 months and 4 days--produced a second "hellish" idea: the strips method, i.e., tossing lots of stripes of cloth into the crude oil covering the beach so that they can soak up the spilled oil.

The only simple way used by Monsier Bilinguez, administrator of the town of Majawish, is to hire a group of strong men at a daily pay of 5 pounds who will divide the beach into small areas and every day take away the masses of oil-soaked sand under the water along the Majawish coastline. This operation should take 3 months.

The crude oil covering the beach is a real problem for us, as the town administrator says, for we were expecting 60 tourists and only 13 showed up because they heard of the spill and the sea is the main tourist attraction here. The pollution makes it impossible to do anything--swimming, fishing, or engaging in other kind of recreation.

Engineer Mas'ad Muhammad Mas'ad, director of operations for the Gulf of Suez Company in Shaqir, said: The organization has 6 departments concerned with pollution.

Dr Mustafa Sha'rawi, director of operations and deputy chairman of the board, said the government is very much interested in eliminating pollution by crude oil. Regulations and laws are about to be issued specifically for tankers that come to the port of Ra's Shaqir to be loaded and have their tanks cleaned with water, which is then dumped into the sea with the oil sediments remaining in the tanks.

'Adil Tahir and the chairman of the environmental commission together with the local administration and the oil commission came to remove the pollution along the Red Sea coast from al-Ghardaqa to Ras Banas. The oil commission offered to pay a million pounds for the clean-up, but the Red Sea governorate rejected this amount because the operation will cost 12 million pounds and be handled by a French company that specializes in this kind of work.

But what do the tourists here say?

Al-Mahdi al-Bahr from Tunis says: The amount of crude oil on the beach keeps increasing every day because of winds. What happens is that the sand mixes with the oil, becomes heavy, and sinks under the water. When we go to bathe, the "pitch" covers our entire body and clothes.

Engineer Nabil Halawa from the Sudan says: I suffered from urticaria because the seawater was polluted by crude oil.

Majdi 'Amin Yusuf, representative of the Holy Family School in Misr al-Jadidah says: Spending 3 days here on the Red Sea is like staying a whole month in any of our summer resorts, but unfortunately, the accident that caused the oil spill spoiled the air.

Dr Hammad 'Abdallah Hammad, a professor at the University of Hilwan, says: We are first and foremost responsible for the pollution--this for a number of obvious reasons, chiefly the failure to apply international law, which every civilized country in the world applies, e.e., the most important countries famous for tourism like Italy, Spain, and Greece, which possess very extensive coastlines.

What would happen there if their beaches were threatened by such oil pollution? Would they leave them that way? This is the question that must be answered by officials of the Red Sea governorate, especially in the light of what the president of the republic said to the effect that the income from tourism was less than what was estimated and did not cover oil and sugar supports. We must therefore enforce international law to protect our beaches. This is one of a thousand steps we must take to promote tourism, Egypt's real hope of increasing its revenues--and not its losses--which we need very badly.

Dr Sami Salim, the official on the oil commission responsible for protecting our beaches frm pollution says: We are still studying the present condition of the Red Sea shoreline and drafting strict laws to prevent the pollution which damages industry, tourism, the income of the town from fish, which is clearly inferior, and many houses of the townspeople who depend on fishing in al-Ghardaqa for their livelihood.

At any rate, everything possible is now being done to remove the pollution. Oil minister 'Izz al-Din Hilal will fly next Saturday and Sunday over the region to survey the clean-up operation on the most beautiful beach in Egypt.

The experts say the clean-up will cost 12 million pounds and that a French company will begin the job with the assistance of an internationally known expert who has come to Egypt to participate in the clean-up operation.

5214
CSO: 5000/5024

WATER SHORTAGES, HYDRAULIC PROJECTS EXAMINED

Hydraulic Projects Noted

Algiers ALGERIE-ACTUALITE in French 2-8 Sep 82 pp 3-4

[Article by Hafidh Chibane: "Lagging Administration"]

[Text] Following the more than hour-long interview we had with him, the director of the Souani (Maghnia) dam project emphasized for the third or fourth time: "If you want more information, you may see me in Tigzirt. I am leaving!" Depressed, the young official was not going on vacation. Rather, he was quite simply leaving the work site for good, accompanied by his technical director. Wallowing in problems with no reason to exist, worn out by promises never kept, his hands tied by the ever-present red tape, the head of the project had resigned, to his great regret: "It is no longer possible to work under such conditions!"

But what is going on in Souani? Before answering this question and looking into the reasons leading the young official to throw in the towel, one should first of all describe the site of the irrigable area of Maghnia, entrusted in June 1978 to the National Water Projects Enterprise (ENATHYD), which had just been set up following the nationalization of the existing foreign company (Grands Travaux de l'Est, GTE).

The projects had been under study for about ten years. Completed by an Italian-FRG partnership, they mainly involved improving means of irrigating 5,000 hectares in the Maghnia Plain already under cultivation and an additional 4,000 irrigable hectares. At the close of the studies, four major courses of action were chosen offering the best solution. The first concerned the Beni Bahdel Dam, which now supplies Maghnia and the city of Oran. The growth rate of the western capital means that its needs for drinking water have steadily increased, at the expense of the 5,000 hectares under cultivation in Maghnia, for the amount of water available has steadily dropped. It was therefore decided to build another dam at Sidi Abdelli in order to better supply Oran with water, thus leaving the potential of the Beni Bahdel Dam for Maghnia.

The second aspect of the project involved storing excess water from Beni Bahdel in an artificial 15-million-cubic-meter reservoir, formed by three earth dams

located at Souani. The reservoir will be filled by pipeline from Beni Bahdel when it has reached the overflow stage, particularly at times of heavy rains and flooding. The third aspect of the operation consists in the construction of a pumping station 30 kilometers downstream from Beni Bahdel, on the Tafna Wadi. Its purpose would be to ensure the recovery of water from the small tributaries of the Tafna in order to pump them back into the pipeline connecting Beni Bahdal and Souani.

Finally, the fourth portion of the project is aimed at building and installing a 60-kilometer-long pipeline crossing the whole area of the Maghnia Plain and permitting the recovery of water from the underground sheet. Fourteen deep wells will make it possible to draw off 7 million cubic meters of water by means of two pumping stations. Work has been divided into four contracts.

The first includes construction of the Kef pumping station, made up of a 1-kilometer-long inlet channel, a pumping station, construction of a 1,000-cubic-meter reservoir and the laying of a 2.5-kilometer-long metal pipeline.

The second involves construction of the Souani reservoir, three dikes and auxiliary facilities (intake tower and drain çocks). The third includes the manufacture and laying of the main Beni Bahdel-Souani pipeline over a distance of 27 kilometers. This pipeline with distribute water to the Maghnia Plain and will also be used as a transfer and distribution. In this connection, ENATHYD has undertaken construction of a plant to make the elements of the main, located near the Souani Dam. Work on the unit has halted. The head of the project provided us with explanations relating to the causes of interruption of work on this production unit. It is therefore to be included in the "problem chapter" that we shall take up later.

To come back to the expansion of the irrigable Maghnia area, it should be noted that the fourth portion of this integrated project involves the annexation of an additional 4,000 hectares by sprinkling irrigation. Credits allocated for completion of this project total over 655 million dinars. Work, initially expected to take 4 years counting from the second half of 1979, will necessarily take longer because of difficulties encountered. "In 1981, we were already 18 months behind. That is the burden bequeathed to us by our predecessors," laments the head of the project.

Because of the specific nature of its problems, Souani is truly an "old story." First of all, the project had to face the burning issue of sovereignty. Before and even two or three years after nationalization of the GTE, the highest responsibility for management and construction of the project was entrusted to the foreign company.

For over 30 months, ENATHYD was limited to the secondary role. The project director remained the same foreigner, despite the presence of young Algerian personnel with all powers. He was the absolute master and recruited all foremen, shift foremen, crew chiefs and supervisors in France, where they were unemployed. Drafting of the contracts and their execution was also left up to the good will of that same official. These are not gratuitous claims. Algerians subsequently hired have proof. Everything we have recently learned

we had already heard during a visit made to Souani over 2 years ago: Uncontrolled technical assistance that "made Africa" and cost dearly (5 million centimes a month, some paid in foreign exchange). Was it perhaps the result of complacency? For how else is one to explain the insulting treatment of workers on the job and the rapidly forgotten, stifled protests of indignation of those same workers? How and why would people have closed their eyes to this question of national dignity for years? The fact is that beyond the various economic transactions involved (distortions in the contracts, 76 million centimes in expenditures for housing, and so on), it was first and foremost -- and this is the most serious -- a problem of sovereignty and national dignity.

It is quite simply astonishing that, 20 years after independence, such aberrations could have been permitted. What is inadmissible is that Souani is now paying the consequences, despite the energy and hard work of young Algerian management personnel. Their devotion reduced the delay to 12 months. "It is a great deal, but it is very difficult to stabilize it, given the lack of means the project has to endure." Souani is now in the "critical phase," the project head explains. "First of all, we face the problem of the laying of the main pipeline. The plant which was to manufacture the elements for the main seems to have been brought into question. It was suddenly noticed that one already existed at Chaabet El Ham (Ain Temouchent). Deteriorating, it will not go into production for about a year. We are therefore forced to wait and the waiting is killing us." Furthermore, construction work on the Souani reservoir, which is made up of three earth dikes, has also been suspended. "We have been awaiting purchase of two earth rollers to pack the dike fill for over a year and a half. The latest news we have is that that equipment was reportedly shipped from the United States in May," the project head says.

"It is sailing," is the sarcastic remark of one young upper-level employee. Souani also faces a delicate problem, labeled a "human problem" and relating to the spirit and mentality of some GTE workers with whom they have worked for many years, one that has inculcated a particular way of viewing work, essentially based on what one can get out of it, profit. We now have flagrant inequalities between workers of the same level. Bonuses and wages were set based on the mood of the official. "For our part, we are trying to remove those inequalities through a standardization of the rights of all workers," says the project head.

Because of all these difficulties, Souani will not be completed in 1983. Another date is now given: the end of 1985. In the meantime, and it is unfortunate, the Maghnia Plain and the people of the city of Oran will continue to suffer from a water shortage.

The same complaints are heard at the El Ibtissam (formerly Deur Deur) Dam located 30 kilometers south of El Khemis (governorate of Chlef) on the Zemmour Wadi, a tributary of the Chellif Wadi. Planned for this winter, the startup of this dam will not take place until the end of next year, the beginning of 1984 or even later. Why? The dam, practically finished, still has no permanent access road (9 kilometers), which is unacceptable. The head of the project, who has taken the personal initiative of discussing the future construction of the road (final estimate of 17 million dinars, delivered before the end of the

year by the German firm that built the dam), did not receive approval from his board of directors. Thus, following a national call for bids, it is a company under the Ministry of Hydraulics (ENRGO [expansion unknown]) that was chosen to build the road in the period of one year and costing 30 million dinars. Work has not yet begun. The second problem has to do with the evacuation of the people now living in areas that will be flooded once the project goes into operation. The head of the project has appealed to the governor of Chlef by telex and by letter to notify him of the availability of housing for the 28 families that will have to move. A meeting was even called in May to discuss the subject. The promise made by local authorities has not yet been kept, meaning another wait. "Finally, the third handicap standing in the way of the work is obviously the purchase of equipment, the hydraulic equipment."

In a report on hydraulic equipment sent to the General Directorate of Hydraulic Infrastructures in February, the head of the project called its attention to the following:

"If the contract for hydraulic equipment is concluded next month, the filling of the dam could begin a year late, at the end of 1983. But considering the procedures involved in concluding contracts, on the one hand, and the absence of a general enterprise at the time of installation, on the other, there is a great risk of seeing that delay, initially limited to 16 months, extended to 2 years."

The SN METAL [National Metal Construction Company] (which makes the equipment), committed in the beginning to meet the dam's equipment needs, pulled out at the last minutes, which forced the General Directorate of Hydraulic Infrastructures to begin consultations with enterprises for the delivery and installation of such equipment. On 16 September 1981, a limited international consultation was begun. At the beginning of the month of January, the analysis of bids was forwarded to the ministry involved. Since that time, there has been nothing but silence. And yet, no one denies the importance of the dam or the impact it would have on the region. With its total capacity of 115 million cubic meters of water, Ibtissam is destined to increase the hydraulic resources needed to irrigate from 30,000 to 36,000 hectares located in the El Khemis and Kherba El Abadia plains, which constitute the upper Chellif area. It should be recalled that to date, that area has been irrigated by water from the Ghrib Dam, which has silting problems, and by the uncontrolled flow from Chellif Wadi tributaries. The total amount of the El Ibtissam Dam contract is on the order of 320 million dinars. The Sidi Abdelli Dam, which is to supply drinking water to the city of Oran and irrigate the Sidi Bel Abbes Plain, does not escape the rule either. With a total capacity of 110 million cubic meters of water, this dam, whose cost is an estimated 500 million dinars, is now eight months behind schedule. Work began at the beginning of 1979 and will not be finished by 1983 as planned.

This is mainly due to a change in plans in one of the studies. "This required an additional surveying program with laboratory tests," the project head states. "It was then necessary to change the equipment initially planned and draw up a new personnel profile."

In addition, the evolution in the construction of Sidi Abdelli is linked to the inflation raging in Brazil (6 percent a month), since it is a Brazilian partnership that is building the dam. Actually, Sidi Abdelli is being financed by the Bank of Brazil and the ADB. Two credits have been allocated: the buyer's credit (Brazil) for the exportation of Brazilian equipment and a financial credit from outside that country. Consequently, the dam is suffering enormously from the lack of equipment. Since, as we have said, Sidi Abdelli is to supply the city of Oran with drinking water, it is high time that the departments involved in the achievement of this goal think about it seriously. It would appear that to date, no preliminary plans have been worked out.

In the governorate of Mascara and according to the head of the El Fakia (Ouzert) Dam project, the Algerian-Romanian partnership on the job is trying to get the equipment together to make up for the partial delay felt here also. With a volume of 101 million cubic meters, the El Fakia Dam, of definite economic interest to the region, will irrigate the El Habra Ghriss Plain and supply drinking water to Oran and Arzew. Progress on the project is about 50 percent. "Its filling may take place in 1983, on the condition that the logistics follow!" the project head states. Logistics: This means rational use of the existing equipment and meeting all demands for machinery and equipment. And yet, based on the observations that we gathered nearly everywhere, most of which are repeated over and over (lack of equipment in particular), can El Fakia be ready on time? The response is skeptical. The concensus one sees following visits to the many project sites in the western region of the country does not give rise to optimism. Despite the good will of management personnel, the picture remains gloomy, very gloomy, especially given the fact that since independence, only three dams have been built, including the Djorf Torba at Abadla and Sidi Benaouda at Mohammadia. One is even more bewildered when one learns that our national resources in surface water are an estimated 13.5 billion cubic meters a year and that of this entire potential, only 560 million cubic meters are stored by the dams. One is absolutely shocked when one knows that the area classified as fit for irrigated development is some 830,000 hectares.

And yet, because no attention is paid to the complaints of the men in the field, because time is spent on petty calculations, because, in order to open up a minor access road, a series of interminable meetings is held, and because, in order to have an earth roller, one has to go far away, we shall continue -- and for how long? -- to pay sky-high prices for fruits and vegetables, to stand in line at the fire hydrants to fill our buckets, to drink yellowish water and flirt dangerously with all kinds of diseases.

Water Resources in Oran Reviewed

Algiers ALGERIE-ACTUALITE in French 2-8 Sep 82 p 5

[Article by Ben Faycal: "Satisfactions and Concerns"]

[Text] The water problem in Oran, as in the rest of the country without a doubt, is less the water itself than its planning, its management, the lack of qualified personnel. Speaking to us in his office, where he is overloaded

with paperwork, Mr Allel, waterworks director of the governorate, admits that his sector "is behind the other branches of the national economy by one plan when it should have been ahead by one plan. Therefore, in order to be on the proper social, cultural and economic level, we should work out two plans." Lacking that course of action, stop-gap measures and erratic actions will continue to prevail, thereby mortgaging any real and effective regional industrial, agricultural and social policy."

The water situation is truly cause for concern. Before going to the Communal Water Administration (RCE), the president of the APC, visibly tired of repeating the same things over and over, finds time between two telephone calls to tell us: "Water has been the cause of great controversy in Oran. The alarm was sounded two and a half years ago and no one has done anything yet. At best, despite the considerable efforts made since May 1982 on the local level by the different water administrations, our water shortage is 60,000 cubic meters a day. Having said that much, if one compares this summer with preceding years, the people's drinking water supply is clearly better. Naturally, the taste is brackish, but at the present time, most families have water fairly regularly, while before April, only a few districts had any. A great deal remains to be done."

The water shortage of the governorate of Oran has two main causes:

The first is that the governorate has long been known for the poverty of its own water resources and potential. The hydrographic system (surface water) made up of the Hamdi, Mahgoun and Tlelat wadis "represent a negligible and unworkable temporary potential." Underground resources mainly come from the Bredeah-Murdjadjo complex and the plateau of the three Hassi (Hassi-Ameur, Hassi-Bounif and Hassi-Ben Okba, whose water -- which is inadequate -- is not good for drinking or even for agriculture). The Tafraoui underground sheet (5 cubic hectometers a year) is underexploited. All these resources, managed by the APC, provided a maximum volume of 36,000 cubic meters a day previous to May 1982.

Unable to rely on its own water resources, the governorate of Oran quickly became dependent on other neighboring governorates, given its rapid population and industrial growth. Regional help was not only necessary, but vital to the economic and social survival of this city, whose strategic importance does not need to be stressed.

By 1952, the Beni-Bahdel (governorate of Tlemcen) water system provided Oran with an additional 82,000 cubic meters of good-quality water a day, water as pure as mineral water, according to experts. In 1975, the Fergoug (Mascara) added to the city of Oran and the Oran-Arzew corridor another 35,000 cubic meters a day and to the city of Arzew and its industrial zone, 24,000 cubic meters a day. Management of these water systems is the responsibility of SONADE [National Company for the Distribution of Drinking Water and Water for Industrial Use] as far as the gates of the city. "It is important," Allel notes, "to state that the water transferred from the Beni-Bahdel and Fergoug dams represented no less than 84 percent of the total volume which the governorate has for its domestic and industrial needs previous to May 1982."

In other words, in April 1982, the governorate of Oran had a total maximum volume of 177,000 cubic meters a day and an average of 157,000 cubic meters.

Following a series of consultations and special meetings between local authorities, the Waterworks Directorate decided to make optimum use of all the governorate's water capacities. On 9 May, a new Bredeah-Oran main was put into service, with an additional flow of 3,000 cubic meters a day. The drilling of new wells should also be pointed out, such as those in Bou-Sfer, thanks to an agreement between the Ministry of Hydraulics and the Ministry of National Defense aimed at "responding to the urgent needs of Andalouses and Corniche."

Today, a difficult stage has been passed in Oran. All local resources are being used to the maximum. This has resulted in a fairly regular supply for 80 percent of the population. Entire districts that had never before received a drop of water enjoyed the pleasure this summer of finally seeing their faucets used for their intended purpose. All the credit goes to the local water officials and personnel from the Water Administration, SONADE and SONELGAZ [National Electricity and Gas Company]. They are spectacular improvements, but "they actually fit into a context characterized by scarcity and serious water shortages. We are concerned about the end of the 5-year plan because the current balance is coming to an end."

In the Water Administration, the tone is more somber: "The people and some enterprises harass us. Lacking competent personnel, distributing water at present is a nightmare for us. Let us not even speak about the low-income districts such as Planteurs, where the situation is desperate. Every day, we rob Peter to pay Paul and this cannot go on indefinitely." The same exhaustion can be read on the faces of waterworks personnel: "Bredeah saved us this summer, but it can only do so for two more years. Despite the volume, this water supply represents relatively nothing."

Despite relative tangible improvements on the quantitative level, the solution to the problem remains uncertain as long as there is no overall national approach integrating a truly operational regional water policy. This is the second cause of the water shortage in many governorates and not only in Oran. While the hydraulics sector should be above other sectors, it is below them. Pertinent guidelines found in the resolution of the party Central Committee on hydraulics have not yet been followed with any remarkable effect. "It is true," the director of hydraulics states, "that hydraulics investments are heavy and commit the government and the country for over 50 years. We therefore understand why the decisions are long in coming, but should that excuse the lack of planning and consequently, the underestimation of the water factor, when very often, the successful or unsuccessful operation of the industrial, agricultural and sociocultural sectors depends on that factor?"

To these remarks, we would only add, in order to illustrate them, that out of the over 80 billion cubic meters which the country receives annually, only 3 billion are recovered, if our memory serves us well! But is it necessary to go into further detail about the delays, the indifference, the red tape? To do so would not quench the thirst of the Oran people, especially since the

idea of the priority of water projects has just met the extremely difficult first test imposed on it. In Oran, all eyes -- and hopes -- are now turning toward the project to bring water from the Tafna and the search for the best possible scheme is coming to an end. The most optimistic predictions involve a wait of from three to four years. In the meantime, stopgap measures, such as repair of the distribution system, an increase in the number of boosters and the drilling of wells, and so on, will be continued by the different hydraulics administrations, which are impatiently awaiting their merger into a single organization of the SEDAL [expansion unknown] type in order to ensure better coordination and the rational management now lacking.

Because of a lack of information or because he is often excluded from affairs concerning his city, the average man in the street does not see all the efforts being made to provide him with a better standard of living. Consequently, everything looks ridiculous to him. He laughs at the advertisement calling on him to demonstrate civic-mindedness by trying not to waste water, the "source of life." "How could I waste water when I don't even have any or have so little?" he wonders. While expressing satisfaction over the improvements made this summer, he finds the water "too salty" and worries about his health and the health of his family, especially when he cannot afford to buy Saida water regularly. In short, he complains.

With regard to waste, local officials give the citizens credit indirectly. "Individual waste cannot be seriously measures, on the one hand because the meters in buildings do not work, for lack of maintenance, and on the other hand, because those in charge of keeping an eye on waste are many in number. However, waste due to leaks from the distribution system are put at between 20 and 25. That is where the big waste lies." It is now up to the Government Property department, the OPGI [expansion unknown] and the ONLF [expansion unknown] (formerly the CIA [Algerian Real Estate Company]).

The brackish taste of the water, another subject of lively discussion, presents no danger. "In order to make the water from Bredeah drinkable (it is salty), we have had to mix it in scientifically worked out proportions with water from Beni Bahdel, which is of very high quality. The same water for the majority instead of pure water for a minority: That was our choice. It was either that or go thirsty. This water meets the standards of the World Health Organization easily. Now, if someone has another immediate solution to propose, let him go to the Hydraulics Directorate."

"This water," Dr Djaffari (SONADE) repeats over and over, "is chemically and bacteriologically drinkable. Our laboratory is equipped by the WHO and our personnel trained by its experts. Multiple, detailed, daily analyses of the water are made. Every two hours, our different treatment and sterilization stations inform us about the dosages, the quantity of reagents they put in the water, and so on. As far as the gates of the cities and with the exception of unauthorized wells that we cannot control, our water is safe." The doctor then launches into an hour-long demonstration of his claims, with WHO facts and figures in hand.

At the gates of the city, it is the Communal Water Administration (RCE) that oversees the quality of water by doing 20 damplings a day for its analyses and treatment. And yet, the work is based on sampling and it is enough for the water to be dirty in a single building for disease to be spread. Actually, the water department is not directly concerned with the buildings, which are under the responsibility of the OPGI, the ONLF and the Vacant Property department, an appropriate name. Buildings under the latter organization are in a state of abandonment that would irritate the most peaceful of men. Consequently, the danger would not come from water distributed by the hydraulics departments, but from the cisterns of abandoned buildings.

The rumor that water now available is not safe is based on groundless information. One is tempted to believe that some privileged persons, used to good water, are behind such gossip, anxious to sow panic. And it is certainly those same individuals, only recently so little concerned about water because they had it, who now want to be "purists" at the expense of the poorest districts. But perhaps we are totally missing the point. In the final analysis, if one cannot get used to the lack of water, one can after all get used to its taste, as one old Oran resident told us: "When Bredeah was shut down (salty water) in order to bring us pure water from Beni Bahdel, many of us had to add salt to our coffee because we were used to the salty taste." That was in 1952.

Water Shortage or Control Problem?

Algiers ALGERIE-ACTUALITE in French 2-8 Sep 82 p 6

[Article by Ahmed Larbi: "Land Without Water or Water Without Manpower?"]

[Text] What if the standard of 150 liters of water a day per person should no longer be respected? And what if, in the years to come, a city like Algiers, a capital with 3 or even 4 million inhabitants should no longer be able to provide enough water, for one reason or another? And what if.... All these questions, long hypothetical and merely the subject of preventive warnings in the national press, are now turning into facts which nothing and no one can deny or conceal any longer. Gone are the days when, as soon as anyone spoke about water, our eyes turned to the south, the desert, the Sahara with its countless misfortunes due to that precious liquid. Even then, the question was an acute one. Can we use ground water or not? Up to that time, the north had been safe. Hydraulics had no raison d'etre, or if it did, it was attached to a poor cousin: agriculture.

There had to be a rural exodus and a population explosion throughout the country in order for people to give the sector the importance it deserved. First of all, only timid measures were taken. The agricultural water department was split in two. Part remained in the world of the fellah, while the other part would strengthen the public works sector. It was not until a decade and a half had passed and after the insurmountable problems created by a shortage of water that an Office of Secretary of Hydraulics emerged. But here also, the burden is too heavy. There are years to make up for and an office of secretary of state with scanty resources can scarcely do better.

In 1979, an idea emerged, a little tardily, that of the establishment of a Ministry of Hydraulics endowed with precise prerogatives and summoned to undergo profound changes with the 5-year plan.

Backed by fundamental information, abundant rainfall of from 65 to 75 billion cubic meters annually, the ministry drew up a series of plans in order to try to mobilize it in different ways. This was all the more necessary because for 20 years, nothing or next to nothing had been done (the construction of one or two dams, one of which was actually only a raised elevation, like the Ksob Dam), without mentioning the old dams whose actual capacities had been considerably reduced by the accumulation of solid residue, which inevitably leads to systematic silting of the existing facilities. The result: The water problem had to border on catastrophe and there had to be talk of an acute crisis in several regions of the country, particularly the east, before action would be taken, before there would be an attempt, by some means, to build a dam here, drill a well there. Within such a framework, Constantine, with its half million inhabitants and a population growth of 4.2 percent, is now becoming the place where the water question is the most acute. One has but to see the long lines of adults and children, their jerrycans in hand, standing in line morning and evening before the APC headquarters, to understand the gravity of the water question in this city and realize its importance, a city in which there are districts where no water has come through the faucets for years.

This situation is all the more unfortunate because some residents wonder about Constantine's resources when they learn that in Hamma Bouziane, water flows freely, part being used for irrigation, part to bathe children and part to wash cars. Director of hydraulics Himmer in the governorate does not conceal the importance of this now fundamental question, summing up the situation as follows: "The city of Constantine, whose water comes from three sources: Boumerzoug spring, 300 liters/second; Fesguia spring, 80 liters/second; and the Hamma well, 220 liters/second, receives, allowing for losses, 540 liters per second, which represents a shortage of 48 percent compared with demand. However, this is not the problem because half of the water can be distributed while awaiting the completion in 1984 of the only dam in the vicinity: Hammam Ghrous (Othmania Wadi). The problem has to do with distribution, first of all, a faulty 150-kilometer-long system, 80 percent of which has been patched, and second, the poor dispatching. This is not the opinion of commune representative Bouchair: "A distribution schedule is periodically drawn up. Since Constantine has different levels, some districts are necessarily better served than others: two hours here, three to four hours there, but we are trying to satisfy nearly everyone." For Bouchair, the wells are not adequate: "We are trying to find a palliative measure, to treat waste water from Rhummel and in compensation, receive irrigation water from the Hamma. But that would only be another palliative measure. We need dams." For the time being, they do not exist. The only one under construction is on the Othmania Wadi, to which SONAGHTER [National Company for Large-Scale Water Resource Works and Rural Equipment] is being connected for the first time. With a flow of 34,560 cubic meters per day, it will make a fundamental contribution starting in 1984. But Constantine will not breathe easily for a decade, with the completion (around 1995) of the Khenneg Dam, with a capacity of 100 million cubic meters and a flow of 2,500 liters per second.

One has to travel several kilometers and go from one governorate to another (Skikda) to find this famous infrastructure in Zerdezas, not far from El-Harrouch. Serving the cities of Skikda, Harrouch, Salah Bouchour, Ramdane Djamel, El Hadaik and Zerdezas, this dam, with a capacity of 250,000 cubic meters, has silting problems, although it was raised in 1974, and it also experiences a problem with drainage valves in the case of flooding. In addition, while the left bank of the dam remains blocked, this is not true of the right bank which, by a curious accident, has been stripped bare. The participation of people living on the banks and of private landowners has a great deal to do with this. With a flow on the order of 500 liters per second, it continues to irrigate the Skikda Plain and the vicinity twice a week, by means of the Safsaf Wadi, in goods years and bad. It also supplies the population and the liquefaction plant.

The bordering governorate, Guelma, is reputed to be a hot, arid region, but paradoxically enough, it owes its luck to a relatively small population (80,000 inhabitants), meaning that no one has to stand in line for water. Consequently, unlike in Constantine, one can say that it has enough water. Its resources: wells. There are all kinds. A Roman spring, Hammam Bradou, has a flow of between 70 and 100 liters per second. The Hlla Wadi spring is a also used, along with wells G1, G2 and F1, with flows of 9 liters/second and 15 liters/second. Following the example of the capital of the governorate, other wells are being drilled: 24 in Souk Ahras, 9 in Sedrata, 8 in Bouchegouf, 7 in Zenati Wadi and 3 in Bouhadjar. In all these cities, as in Guelma, the water is controlled by a group of eight young engineers newly graduated from the major universities. Every possible means of making the best use of water is explored, while awaiting "J Day." That day is already on the horizon: 1985, it is said, 3 years away, when the governorate will be able to look to its own development, its agriculture, the plants that will spring up in different places. On that day, downstream from the thermal spring, a dam will be built at its namesake. Designed to irrigate an area of 10,000 hectares from Ghelma to Bouchegouf and supplying 10 million cubic meters of drinking water for Guelma and its region, the dam will have an area of 1,070 square kilometers and a usable capacity of 200 million cubic meters. With a total capacity of 220 million cubic meters, the dam is built of earth, in other words, of materials found locally. Begun in April 1980, work is well underway. An international team made up of French for the consulting firm, Italians for construction, Czechs for superintendence and Algerians for supervision, is on the job night and day overseeing the 4.5 kilometers of galleries, two of which are 9 meters in diameter and 978 meters long. The dam, which will have drainage without valves, is supervised by a team of Algerians made up of topographers, upper-level technicians and an engineer, Akli Benlala, 30, who was a member of the last class to have studied abroad. He is everywhere at once. At this site "at the far end of the earth," as workers responsible for building this structure like to call it, Benlala is the link between the enterprises themselves and between the enterprises and the workers. He heads meetings and gives suggestions. He is awed by life at the site: "We learn many things on the job." And yet, he regrets one thing: being the only Algerian engineer. "If there were four or five of us on such a job, we would have much more control of the situation." Socially, his life is scarcely different from that of his colleagues who remained in Algiers. The only advantage is that he has a house and eats and drinks free, as they say.

At the ministry in Algiers, officials are aware of all the problems enumerated The question of water on the whole was not taken up until 1980. A certain delay thus built up, creating a gap between growing needs and the mobilization of water. There was an enormous delay with respect to studies and prospecting. Each person tries to explain the situation in his own area, for it is a phenomenon with many parameters. First of all, director of planning Djellal: "In the absence of any real policy to develop the territory, we are trying to do our best. We have programmed the construction of 19 dams, ranging from 1 million to 1.5 million cubic meters. Seven have been launched, beginning in 1977, and therefore preceded the 50 year plan. Eight were begun during this 5-year plan. The Mexenna Dam, which will contain 175 million cubic meters, will be begun about the end of 1982 or the beginning of 1983. The latter two will be part of the 11 dams proposed for the plan beginning in 1983." Director of infrastructure Chaouch (irrigation) states: "The water question is not nearly over. It has only begun and everything we plan today will have medium- and long-range results. It is therefore essential to preserve what we have and reflect judiciously about everything water involves." He was asked if he was speaking of hillside dams. "No, hillside dams are not a solution for providing drinking water for the people. They are dams that at most can contain 1 million cubic meters, and the 30 planned throughout the territory are merely a makeup source. What we need is rational, judicious use of irrigation water."

For Haddak, director of supervision, "The problem of water is a money problem. How can one explain the fact that water, which costs 1 dinar per cubic meter here, is not a problem that has been solved. I would cite the case of SONADE, which has debts with many national companies amounting to the equivalent of 15 billion centimes." General director of supervision Bougoura then states: "With respect to water, no one has done his job. While there was no real policy at the plant level, we must also say that the local communities have never taken the water problem seriously and sometimes have not spent a cent to maintain or rebuild water supply systems." For Benkhalfa, director of training, "Regarding training, our shortage is pronounced. Since 1972, we have trained 313 engineers, while we need 330 engineers a year, which means that there was no training policy before 1980. It was starting on that date that within the framework of the internal organization of the ministry, we made continuous efforts to train cadres, both at home and abroad. Institutes and training centers were set up throughout the territory, while 630 candidates are being trained in 14 other countries. The first wave, 371 engineers, will not be on the job until 1986." Is there a policy of assignments and incentives to attract young engineers? "A hydraulics engineer trained abroad or at home is classified at Step 14 of the Civil Service scale and is consequently considered like any other engineer. As for the advantages, they naturally exist, insofar as one tries everything to find them a place to live. In the deprived zones, that goes without saying."

A training policy, policy of assignments, any policy: The ministry is beginning to understand the extent of its importance and value. For two decades, the country has suffered the consequences of long neglect. Its remains in the good conscience of everyone and also in the role to be played by classes of engineers and specialized technical agents that will emerge. And as one of

them so judiciously states: "How can one explain that out of the 65 to 75 billion cubic meters of water that fall every year, only 3 to 4 billion are left at the end of the chain to distribute to the different sectors, other than a flagrant flaw in the water policy?" He concludes very simply: "Our land does have water. That water needs us."

Water Shortage in Big Cities Examined

Algiers ALGERIE-ACTUALITE in French 2-8 Sep 82 p 7

[Article by Abdelaziz Sayoud: "The Thirst of the Big Cities"]

[Text] It has now become part of our customs and habits and has taken root in people's minds. It is one of those habits one would so like to break, but to no avail. Every summer, during the period of the worst heat, the crucial problem of water arises. There is a shortage of drinking water and our big cities are thirsty. It is a dramatic, painful situation that has already existed for many years but that has not yet found any adequate solution.

"Desperate ills call for desperate remedies," it is said. By virtue of circumstances, the shortage of drinking water in the big cities has become that other great evil of the past decade, a great evil which, for lack of any suitable therapy that would attack it at its very root, continues to affect the daily lives of the Algerian people.

"In the summer, one does think about one's holiday, one's vacation, but for some time already, we have not thought solely about those things. In the summer, we also think about water for our homes." It is a new concern of citizens that takes on more and more importance in their daily lives. A sign of the times, one must always wait for summertime to see the whole scope of the water question. But while it is true that during the summer season the consumption of drinking water attains exaggerated proportions, the shortage of water is not a circumstantial phenomenon only brought by the intense heat. The people do not have enough water in their homes, water poses serious problems for industry and there is not enough to meet the needs of agriculture. Is it a simple scarcity or a real crisis? The water supply problem has also become a real national concern that demands vigorous efforts and wide-ranging action. "Water is life." And it is in terms of that simple truth that solutions to this dramatic problem must be considered. It is a difficult, long-range task whose essential goal must be mastery of the water question on a national scale.

Every summer, with the enormous needs for drinking water, the shortage is painfully evident. The phenomenon is inexorable and the lack of drinking water, which truly haunts the season, is posed more acutely every year. Today, after housing, the citizens demand water in their homes with as much urgency as other common products. A liter of water is worth as much as a loaf of bread.

What cities, what villages in the country, do not experience the problem of the drinking water shortage? Very few are free from the worries stemming from the rarity of the precious liquid.

Algiers and its region experience the worst drinking water supply and distribution problems, mainly because of the heavy urban concentration and the inadequacy of hydraulic resources. It is not a new problem and, because of the lack of water in homes, has given rise to a great deal of discussion and controversy, with meager results.

Nor does Constantine, the country's second largest city, escape the rule. What is more, it suffers from a water shortage that in recent years has reached difficult proportions. In other words, things have reached the crisis stage. "We have reached the critical level," the official in charge of the city's water services explains. All districts are short of water and one is no better off in the center of the city than in the upper areas. There are lines and pushing and shoving whenever water is distributed and one sees the frail outlines of children stooped under the weight of the full jerrycans. This is the sad sight daily observed in Constantine during the summer. It is the season of thirst, a veritable calvary whose effect on citizens is easy to imagine.

Obviously, the supply of drinking water is inadequate to meet the yearly growing demand. The population explosion, urban sprawl with its creation of new ZUNH [expansion unknown] and the increase in the number of small industrial units have only worsened the situation. Fair distribution of drinking water to the citizens of the city poses serious problems for the departments concerned and requires all manner of maneuvers. "We are simply content to divide up the shortage," explains the hydraulics director. There is no dearth of difficulties in such a sensitive field as water.

First of all, there is the very topographical configuration of the city, which constitutes a serious obstacle. A city on different levels, Constantine is the victim of its own geographical location. Next, water resources from the different wells providing the city's supply of drinking water can no longer meet the immense needs. Constantine, with a population of over 400,000 inhabitants, has only 45,000 cubic meters a day, 80 liters a day per person. It is very little and all the more inadequate because this overall amount must be used by both the homes and the peripheral industrial units. The age of the distribution system and the main pipes constitutes another major problem, insofar as it results in nearly a 30-percent loss in comparison with the amount of water available. In many cities, the drinking water distribution system is the Achilles' heel, but it is not enough to justify the entire shortage. Too small and worn out, the 150-kilometer-long system in Constantine is 50 years old. Some mains date from 1912! Replacement of the system is still underway. The operation takes place at the same time as a reorganization of the storage reservoirs, four of which have already gone into service, thus ensuring a better distribution of the precious commodity in the future and independent service for the main areas of the city. But whatever the contribution of these operations, the problem will still remain. The essential point must be the availability of the same commodity: water. "Constantine has had no additional source since independence." New wells have only helped make up the shortage of the main sheet of water in Boumezroug, whose constantly dropping flow has gone from 600 liters a second to a maximum 350 liters a second.

The city's drinking water shortage amounts to 40 percent, an enormous amount and the obstacle seems difficult to remove. Short-term projects that have unfortunately not yet been completed could help Constantine considerably, particularly the construction of a purification system for waste water that would be diverted to the irrigated area of Hamma Bouziane, making it possible to recover all drinking water from the well located in that area and use it for Constantine. The other supply (400 liters per second) would come from the Hammam Grouz Dam now being built. In medium-range terms, the structures, once operational, will enable Constantine to attenuate its shortage, for "everything we are in the process of doing in this field is only patchwork," as the hydraulics directorate explains. "Constantine will not entirely solve its water problem until it builds the Khenneg Dam (100 million cubic meters a year)." That major undertaking will not soon be ready, for it is only in the study stage.

In the west, central region, south and east, the problem still exists. No miracle is visible anywhere. The only difference lies in the extent of the shortage in each region or city.

Skikda and Guelma, two other major cities in the east, also suffer from the shortage of drinking water. Paradoxically enough, the first city is in a region rich in water, where rainfall is the highest in the country, and still has a drinking water shortage. In some districts of that city, housewives are forced to get up at four o'clock in the morning to store the water needed that day in the home. An old problem, the shortage of water in Skikda has steadily grown with the establishment of the industrial zone, whose petrochemical units require a considerable volume of water coming from the only dam in the region, which supplies five localities in the Saf-Saf Valley, as well as farms in the region. And yet, it is not water resources that are lacking in this governorate. Ramdane Djamel, 17 kilometers from the governorate capital, where drinking water is always available in the homes, is an example of the amount of water available in the region.

Nearer the eastern border, Guelma appears to be a tranquil city in the summertime. It is a deceiving picture for a stranger passing through. Unlike the capital in the east, there are no lines and fighting. Here one is far from those pathetic spectacles provided by the children carrying water in Constantine. Is Guelma the exception? Could it be free of the drinking water shortage so cruelly felt elsewhere? Far from it, for it is nothing but an illusion. The apparent tranquillity stems from habit. "Here the people have long been accustomed to the water shortage and put on a good face to meet misfortune." Scarce, drinking water is conserved, just as rare and precious things are. In this city, water is rationed and, with the exception of a few districts located on the main delivery pipe and thus enjoying water all day long, the rest of the city lacks water. Distribution is done by rationing: two hours in the morning, two hours in the afternoon, a rather judicious plan which, even if it does not meet the demand, at least reduces tension and relieves the burden of citizens. It is also true that the population of Guelma is not large. Nature does not facilitate things, however, and prospecting has revealed a certain poverty of the region in water resources. The city is supplied by four main wells, whose total average flow does not exceed 100 liters a second, just enough to satisfy 60 percent of the people's needs, needs

difficult to estimate at present because of the rural exodus. The water shortage is difficult to solve because of the risk of overexploitation of the water sheet. In addition to these natural difficulties are the material and human problems. It is a problem common to many hydraulics directorates in governorates born of the latest administrative division.

In this city, despite the efforts made by the hydraulics directorate, the question of the drinking water supply has not yet found any final solution. From its mountain peaks, Guelma jealously looks to the great plain. It seems to envy Bouchegouf, whose inhabitants do not have to worry about water. Guelma awaits its water and suffers its problem with patience. It is true that hope begins to dawn on the horizon. Hammam-Meskhoutine is near, a colossal undertaking, one of the largest dams in the country on which work began last year. It is the hope of the entire region and will be the source of the drinking water that will flow through the faucets of Guelma.

But while awaiting the projects of the future, there is the constantly bitter present: Our cities do not have enough drinking water. In most of the big cities, the shortage has reached critical levels. It is high time to solve this painful problem. In many developed countries, the average daily consumption is 400 liters per individual. Based on its climate, Algeria has set a goal of 150 liters per day per person. That is the average standard of the World Health Organization. Many of our cities are still far below that level. It is a difficult task and yet, we must make up for the delay. Only 10 percent of our water resources from the rain and melting snows is stored each year, a very small amount. Much more must be recovered.

Algiers, Oran, Constantine, Guelma: Our big cities are short of water. Every year, Algeria receives 70 billion cubic meters of water from the sky every year and yet, our cities are thirsty.

Country's Prosperity Depends on Water

Algiers ALGERIE-ACTUALITE in French 2-8 Sep 82 pp 8-9

[Interview with Tayeb Bouzid, secretary general of the Ministry of Hydraulics by K. Yessad; date and place not given]

> [Text] "Meeting the water needs of the people, agriculture and industry will remain our essential, priority objective for a long time to come." It was in these words that Tayeb Bouzid, secretary general of the Ministry of Hydraulics, began the interview granted to ALGERIE-ACTUALITE. The words pronounced have a special meaning, for they sum up the state of mind of all officials in the sector.
>
> We all know that the hydraulics sector is not sound, for it is afflicted with many problems. Problems, yes, but are they insurmountable? And the solutions? They exist and have but to be implemented and soon. It is a well-known fact that water "is a resource on which the country's future prosperity depends."

Speaking to the assumption that water is the very basis of life, Tayeb Bouzid explains. Let us listen to him.

[Question] Everyone now has irrefutable proof that the hydraulics sector is facing many problems stemming from the fact that it has never been able to keep up the pace imposed on the different actions included in the framework of national development. This state of affairs was fully understood by the sec second session of the Central Committee, which, in its final resolutions, stressed the urgent need to revitalize that strategic sector.

Along this same line of ideas, can you define the solutions that you expect to implement in order to respond to the increase in consumption adequately?

[Answer] Whether it is a matter of improving our national territory through a policy of development and a balanced distribution of economic activities or a question of providing suitable solutions to the social needs of the citizens, water is considered to be a decisive preliminary factor.

The role befalling the hydraulics sector is therefore strategic. Nevertheless, the lack of any national policy for the mobilization and development of water resources would unquestionably involve all economic development efforts.

The resolutions adopted by the country's political structures at the Fourth Congress of the party, the second session of the Central Committee and the Special Congress (June 1980) defined the general objectives of the national water policy.

Achieving these objectives presumes the mobilization and rational use of the country's surface and underground water resources.

This need implies particular development of knowledge and a continuing evaluation of these water resources through consistent research, prospecting and supervision of their use.

These decisions, aimed at maximum mobilization of our water resources, are joined by other actions aimed at the following: through the provision of a supply of drinking water and sewer services, ensuring our citizens of healthy living conditions, both in rural and urban areas; and, through a balanced policy of allocating water resources, ensuring the development of the country's production activities.

In order to achieve the objectives assigned to it, the hydraulic sector has been equipped with administrative and legal structures enabling it to understand and implement the national water policy. Decrees Nos 30-173 and 80-174 of 21 June 1980 defined the organizational framework of action on a national level, while the interministerial order of 14 July 1980 defined the powers of the decentralized structures, to wit, the governorate hydraulic directorate (DHW).

The establishment of these structures led to a massive, rational and consistent intervention implying better use of both human and material potential. The

goal was to achieve optimum, rational use of both surface and underground water resources, aimed at reducing tension and eliminating imbalances through the drafting and implementation of a long-term plan for the mobilization and distribution of water resources based on regional master plans.

Implementation of this plan gives priority to:

1) constant updating of the survey of water resources and irrigable soil;

2) maximum use of existing infrastructures through programs of reconstruction and replacement, maintenance and use;

3) the launching and continuation of the construction of the water infrastructure, including dams, reservoirs, distribution systems and pipelines;

4) the establishment of drinking water and industrial water distribution facilities in order to improve the supply of cities and towns and industrial units; and

5) installation of irrigation and drainage facilities in order to maintain and expand the potential of agricultural production.

The results of this policy must be the correction of deficiencies with respect to the water supply for settled areas, industrial units and irrigation infrastructures, considering the evolution of the water needs of the different consumers.

[Question] Our country undeniably has enormous water potential, and yet, the experience of many of us in recent years has shown quite clearly that these inestimable resources have not been exploited in a suitable or adequate fashion. How would you explain the reasons leading to these distortions in production and what means have been chosen to eliminate disparities?

[Answer] Following independence, two structures in charge of hydraulics were simultaneously set up, one in the Ministry of Agriculture and Agrarian Reform and the other in the Ministry of Public Works.

It was not until 1970 that the Office of Secretary of State for Hydraulics that there was a program of structures, a single, integrated approach to water questions, aimed at strengthening the country's strategy of economic and social development, mainly by meeting the water needs of the people, agriculture and industry.

Nor must one forget the absolute need to arrive at a strengthening of means of completing studies and projects, training, research, and infrastructures for the mobilization and use of water resources.

[Question] Problems inherent in the availability of water are now strikingly evident in all their complexity. Within the framework of the 5-year development plan (1980-1984), a vast national program to supply drinking water to the cities and rural settlements was logically to be carried out.

Can you tell us whether the program in question was carried out in its entirety and what balance sheet can be drawn up now that some time has passed?

[Answer] Several projects for the supply and distribution of drinking water were included in the 5-year plan. A substantial number of these operations was completed, as in the case of delivering water to Oran from Bredeah, supplying Annaba from the Bouteldja wells and doubling pipelines from Mazafran to Algiers. Other operations are being completed or are underway, such as the transfer from the Bakheda Dam to supply drinking water to Tiaret, and so on.

Completion of an operation to provide drinking water for a medium-size city requires at least 2 to 3 years in the best of cases (Bechar, for example), considering the many diverse operations involved: knowledge of the resource, means of mobilization (dams, wells), the laying of pipelines, construction of the delivery, intake and treatment station and distribution to inhabitants.

Urban settlements present a problem of sprawl which city planning has a difficult time mastering. Demand always exceeds possibilities, especially since the hydraulics and housing sectors are working on their programs simultaneously.

To mention only the annual completion of over 60,000 housing units, one must emphasize that all these units require large quantities of water during construction and equal quantities for their inhabitants.

When they are old settlements, one has to reckon with the age of systems, the diameters of pipes provided for smaller populations and the lack of discipline, not to say lack of civic-mindedness, on the part of many users.

Consequently, a constant effort is made to meet the new and ever growing needs, considering the growth of the population. In Algiers, for example, needs have steadily grown by 7 percent annually since 1970.

Precise knowledge of the drinking water supply and sewer system situation in the country turned out to be necessary. Within such a framework, a national investigation involving governorate capitals was launched in April 1981. The results of the inquiry will enable us to have a tool for planning investments and human resources in the sector.

For rural settlements, major obstacles have hindered and continue to hinder efforts made to meet the people's need for drinking water, to wit: a sparse population highly scattered throughout rural areas; uncontrolled hookups to water mains used for agriculture at the expense of citizens; massive industrialization in areas without adequate water resources.

At the present time, several projects are on the point of completion and will improve the supply of drinking water to settlements.

Among these, we would cite: Bel-Abbes, from the Ain-Skhouna spring; Tebessa, from Hammamet and Cheria; Medea and Berrouaghia, from the Ghrib Dam; and Bechar, from the Djorf Torba Dam.

Other projects are also underway and involve Blida, El-Eulma, Biskra, Oued Zenati, Constantine, Skikda, and so on.

In addition to these transfers, a large number of dams are now being built.

Furthermore, wells totaling 170,000 meters in depth will be drilled during the 5-year plan.

[Question] On 26 September of last year, the National Hydraulics Resources Committee was installed, in charge of the rational development and utilization of all existing potential. The objectives assigned to that organization are both essential and top priority. They presume the existence of a mass of human, material and financial means.

How and by what specific means do you expect to achieve the goal you have set?

[Answer] The National Hydraulics Resources Committee, including representatives of some 11 ministries and national organizations, was set up by Decree No 81-260 of 26 September 1981 and installed on 13 January 1982 by Brahim Brahimi, member of the Central Committee and minister of hydraulics.

The actual establishment of the National Hydraulics Resources Committee represents an authentic and concrete expression of the resolutions of the Central Committee with respect to the intersectorial coordination of water problems.

The committee is informed of any investment project having an important impact on the allocation of water resources.

It will also play a decisive role in anything concerning the distribution of water resources in order to meet the people's needs for drinking water and based on the speed of development of our country's agriculture and industry.

[Question] Meeting our citizens' needs for drinking water undoubtedly remains the top priority included in the hydraulics development plan. Throughout the country, the people continually complain about the numerous breaks in supply, even the prolonged absence, of water from their faucets.

Allow us to dream a bit. When in fact will we have water in every Algerian home and on a constant basis? Is that a dream for the future or a utopia?

[Answer] Meeting the people's water needs is a necessity for the country. Consequently, there is no room for dreaming.

The Ministry of Hydraulics has based its efforts on two plans:

1) short-term solutions aimed at making up for delays in production; and

2) medium- and long-range solutions to guarantee a better balance between supply and demand.

The water problem will be solved with the startup of the different water projects underway or being completed.

In addition, over 2,500 operations to supply drinking water will be completed during the 5-year plan, representing an annual investment stretching over several years of 10 billion dinars.

As you certainly know, completion of a water project requires a minimum of 4 to 6 years.

In order to achieve these objectives, the Ministry of Hydraulics has equipped itself with and improved its means for studies and projects.

In addition to the 16 national or regional enterprises already existing, several more enterprises have recently been set up (10, including a National Projects Studies Enterprise).

The National Hydraulics Resources Institute has been given the responsibility for implementing programs to inventory water resources and irrigable soils.

The effort will also involve the establishment of management structures capable of ensuring the operation and maintenance of water facilities, aimed at optimum use of water resources, both with respect to mobilization and distribution.

The establishment and management of these enterprises requires considerable human resources. Within such a framework, training programs for engineers, upper-level personnel and technicians have been launched.

In addition to the use of training structures in Algeria (IHB [presumably IHP: Water-Supply Engineering and Improvement Institute], ENITA [Algerian National Engineers and Technicians School], the Polytechnical School, INAJ [expansion unknown]), over 350 students were sent abroad in 1980-1981. That number was practically doubled for the 1981-1982 academic year. By the end of the 5-year plan, we plan to have graduated 2,000 new engineers.

Special interest is being given to the technical study on construction of the Advanced School of Hydraulics, in keeping with the decision of the Central Committee.

In addition, work on the six training centers for technicians, specialized personnel and workers will be undertaken this year.

Similar attention is given to the development and intensification of scientific research for the purpose of disseminating the use of new techniques and preventing any pollution of water resources.

The actions outlined will make it possible to improve our ways and means of pursuing the overall effort to develop the sector, undertaken since the launching of the 5-year plan, and to meet the social needs engendered by the transformation of Algerian society because of its population growth and the improvement in its standard of living.

11,464
CSO: 5000/5028

DISASTROUS EFFECTS OF DROUGHT REPORTED

Gaborone DAILY NEWS in English 11 Aug 82 p 1

[Article by David Matshediso]

[Text] The drought situation is beginning to take its toll. At least one old woman died from hunger and thirst at the Metsiamanong settlement in Kweneng West, which is drought hit and waterless.

Through a telephone interview, the vice chairman of the Kweneng District Council, Mr Israel Seatshogeng told BOPA that the incident was reported to him by a resident of Salajwe which is in the same area.

Mr Seatshogeng then went to the settlement in the company of Letlhakeng police and found that a number of people were unconscious due to hunger and thirst. Most of these were old women and children, in a weak condition.

Metsiamanong residents had been depending on water from pans which are now reported to have dried up. Their alternative source of water was wild roots. Due to the drought, leaves have fallen off the plants of the wild roots, making it impossible for the residents to spot the roots.

The Kweneng District Council has so far sent tankers of water and the district Commission's office sent a ten-tonner full of bags of mealie-meal as part of its rescue operations to the settlement.

The Remote Area Development Officer for Kweneng, Mr Ramosu Mphotlwe, also said food supplies would be dropped at other affected settlements.

Metsiamanong is situated some 100 km west of the Khutswe Game Reserve on the boundary of the Kweneng and Ghanzi Districts. It has a population of about 100 people.

The implementation of the Drought Relief Programme in Kweneng seems to be rather slow. A lot of time some officials believe, was spent during the consultation process with the result that supplies to the affected areas were delayed.

In some villages working on labour-intensive projects as part of the Drought Relief programme have abandoned the projects because they had not been given the payment they had been promised.

Villagers of Medie, Gamodubu and Kgope are among those who have reportedly abandoned the projects.

At Thotayamarula, another remote area, villagers reportedly live on Mokgalo seeds which are believed to contribute to thirst. The area also has no water.

Mr Mphotlwe explained that the Council planned to equip an old borehole in the settlement.

CSO: 5000/5822

NATION CALLS FOR AID TO SURVIVE DROUGHT

Harare THE HERALD in English 8 Sep 82 p 7

[Article by Howard Barrell]

[Text] **THE broad Shashi River is now just a ribbon of sand ruffled by a hot wind. Normally, at this time of year, the stretch of the Shashi near Francistown should be a running river, according to a senior agricultural official.**

Instead, people are digging in its bed for water.

In Gaborone President Masire has officially declared most of Botswana drought-stricken and has appealed for international aid to avert "an impending catastrophe".

Some 75 percent of Botswana's crop production has been lost and the cattle that are the basis of much of the country's economy face death in wide areas.

To the outsider, semi-desert Botswana always seems to be drought-stricken. But this time the judgment comes from the locals.

The drought is worse in the relatively heavily populated eastern sector of the country around Francistown, Selebi Phikwe and Palapye, and it takes in Ngamiland in the north-western corner of the Kalahari as well as a patch of land about 100 km square on the road from Serowe to Maun.

In some of these areas the November-March rainy season brought not even 2 cm of rain.

The maize in fields alongside the Mahalapye-Francistown road is only knee-high where it should normally dwarf any adult at this time of year.

The drought could not have come at a worse time for Botswana. Foreign exchange earnings are drastically down as a result of the slump in the world prices of diamonds, nickel and copper.

Meat exports to the European Economic Community, Botswana's other main foreign exchange earner, will be hit by the drought. But, according to agricultural officials, the damage seems likely to be within acceptable limits because the areas from which Botswana's meat exports are drawn fall mainly outside the worst affected districts.

The widespread crop failure will, however, mean Botswana will have to increase its import bill for stockfeeds.

A multi-million dollar programme of aid to drought-stricken areas is being mounted after President Masire's formal drought declaration. This is expected to bolster Botswana's request to international donor agencies for assistance.

An interdepartmental committee has advised livestock owners in some areas to sell some of their cattle to get cash to buy feed to ensure the survival of most of their livestock.

The drought could become extremely serious if there are no good early rains at the outset of the season in about November. But cattle could begin to die from about July.

CSO: 5000/5825

EASTERN REGION REFORESTATION CAMPAIGN INAUGURATED

Dakar LE SOLEIL in French 27 Aug 82 p 8

[Article by Pape Sow: "Reforestation Campaign: Goal of 1 Million Plants Is Achievable, Says Cheikh Cissokho"]

[Text] In October, Prime Minister Habib Thiam will close the reforestation campaign in Eastern Senegal. The secretary of state for water resources and forests, Cheikh Abdou Khadre Cissokho, presided at the opening of this campaign at Tamba.

Municipal Council Chairman Moussa Diallo, welcoming Cheikh Cissokho, said that the tree celebration is for them more than a symbol. "It has a special significance." He stressed the important role that the political leadership plays in forestation, but also "the individual and collective activity in this crusade against desertification and its cohorts, misery and desolation."

The council chairman expressed satisfaction that "the international public is becoming more aware of the tragedy which is affecting the sun countries in the form of encroaching desert and chronic drought, destroying any agricultural efforts."

The head of the regional water resources and forests service, Capt Moumar Gueye, explained that Eastern Senegal, with 59,602 sq km of area of which 1,861,309 hectares are classified as wooded, is one of the most forested regions of Senegal. Our region has 17 classified forests, or a classification percentage of 21.8, which is a reassuring percentage in respect to the norms of specialized agencies, the FAO in particular. However, this favorable situation, far from making us self-satisfied, has strengthened our determination to jealously preserve these natural assets, and even to expand them.

Capt Moumar Gueye added that it was for all these reasons that the minister had decided to personally preside at the opening ceremony of the national reforestation campaign, which this year coincides with tree day in our region.

The regional inspector of water resources and forests noted that the appointment of Cheikh Cissokho had given our region fresh impetus in a number of sectors and particularly reforestation. Thus, while in 1974 only 7,269 plants were set out in the region, "under your dynamic leadership 28,356 were planted in 1979, 43,331 in 1980 and 89,193 in 1981."

Popular Participation

Moumar Gueye said that the reforestation activities in the past 2 years had been carried out with the people's participation, but also and above all by organizations and projects in the region, and the national army. In the forefront of these organizations, he said, we should mention the Eastern Senegal Livestock Development Project (PDESO), which has not only done planting, but has considerably helped the forest service in obtaining and delivering the plants to the rural areas of the region. In addition, the inspector cited OFADEC [expansion unknown], the STN [expansion unknown] and USAID with its livestock project at Bakel as organizations making a positive contribution to the regional forestation operation. Reviewing the achievements in the forestry sector, Captain Gueye noted that 40 reforestation committees had been established. These committees are capably assisting the forestry agents in the reforestation work.

The development committee of Bamba Thialene zone completed 10 hectares of reforestation in 1981 and 10 more in 1982. There was similar activity in Tamba North forest in cooperation with the people of Mayel Diby, Thiawre, Sare Doungheul, Sare Thiapato, and Sare Ngaye, who completed a 10-hectare community plantation. Others were completed at Balla, Goudiry, and Bakel, etc.

In his report, Captain Gueye praised Agna Diallo, chairman of the charcoal cooperative of Eastern Senegal, who prepared and placed at the disposal of the water resources and forest service two pieces of land ready for reforestation.

Discussing tree nurseries, Captain Gueye said that Tamba regional nursery, which is being reactivated, is facing the difficulty of a shortage of water. The new nursery at Kedougou has been equipped with a new motor pump. The financing for Bakel nursery is now available and its equipment is being ordered.

The regional inspector reminded the people of the region that our world is seriously threatened by deforestation. In fact, 25 hectares of forest disappears every minute, he said. "The tree is one of the indispensable elements in human survival."

Cheikh Cissoko, secretary of state for water resources and forests, declared the opening of the reforestation campaign and tree day, and thanked the people of Tamba. He stressed the benefits of trees, and expressed hope that our region, although slightly threatened, can achieve 500,000 plantings in 1983, and 1 million in 1984. This goal is achievable thanks to the major reforestation projects of Bakel and Goudiry.

We should mention that the secretary of state, with Mme Maimouna Kane, secretary of state for social welfare, had previously visited Bakel to open the national "One Woman, One Tree" campaign.

Before leaving Tamba in the afternoon, Cheikh Cissokho closed the 2-day seminar organized by the regional council of Senegalese Party women.

9920
CSO: 5000/5817

VOLUNTEER YOUTH PARTICIPATE IN "GREEN SAHEL" PROJECT

Dakar LE SOLEIL in French 30 Aug 82 p 8

[Article by Babacar Dieng: "Launching of Green Sahel Operation at Touba-Toul: 4,000 Plants Planned"]

[Text] Saloum Cisse, of the office of youth and socio-educational activities, representing the secretary of state for youth and sports, Francois Bob, inaugurated on Saturday 21 August the Touba-Toul "Green Sahel" project.

Accompanied by Ousmane Ba, prefect of Thies Department; Mapenda Diaw Mbaye, subprefect of Thieneba District; and Amadou Diarra, regional and departmental inspector of youth and sports; as well as Michael Mbaye, an official of the Thies regional youth council; Saloum Cisse planted a symbolic tree, thus giving the green light to the reforestation operation.

It is planned to plant 4,000 plants, including neem, eucalyptus, fruit trees, cashew, guava and other varieties of trees. During their stay, the young participants will follow an extensive and interesting program, including topics such as reforestation, crop diversification, administrative reform, hygiene, health, nutrition, management of associations, youth club, development projects, poultry farming, first aid, construction of "Ban Ak Suf" improved housing, and conservation of basic foodstuffs. The object is to give the youth knowledge which they can spread to the interior of the country.

All volunteered to spend this month at the project, far from their families. The official delegation was greeted by Mamadou Sangare, director of the project, and by the instructors and participants, who sang the national youth anthem before a large crowd.

After welcoming the delegation, Abdou Diouf, chairman of the rural council, expressed his satisfaction at the selection of Touba-Toul for the project. He thanked the government and particularly the secretary of state for youth and sports, Francois Bob.

Mamadou Sangare explained that the project was aimed partly at reducing the exodus of young people. It was decided to make every effort to keep them busy by teaching them methods from which they would receive maximum benefit.

The project thus reflects both effort by the youth and by the people of Touba-Toul. Mamadou Sangare called on everyone to get involved in order to achieve success for the project.

New Approach

Prefect Ousmane Ba called on the Touba-Toul youth to take good care of the trees which the project participants plant for them, so that the village will again be green, for the greater good of all.

Saloum Cisse, representative of the secretary of state for youth and sports, said that this was an important event because the Touba-Toul project is part of the Green Sahel operation, whose goal is to transform this area that was so hard hit be several years of drought.

Saloum Cisse added that the office of youth and socio-educational activities, in a new approach to youth activities, was turning more and more to projects combining cultural and economic aspects.

Under this new approach, the youth work in Senegalese economic, social and cultural development while being trained and educated.

The Touba-Toul project, which is a combined market gardening and forestation project, should restore to this deforested corner of Cayor its lost greenery, and keep the youth in the area while giving them the possibility of establishing resources to meet their needs.

We hope that as a result of this project there will also be other projects to help the youth and sports secretariat to enable our country's youth to make a positive contribution to the country's economic development during their leisure time.

He thanked the cooperation agency, the administrative, political and religious authorities, and all the technicians involved in the preparations, then concluded: "You young people in this project agreed to devote your vacation to working beside your rural comrades at Touba-Toul; I urge you to persevere on the path you have chosen, that of building your country little by little, but surely and generously."

The Green Sahel operation has thus been launched officially at Touba-Toul, and the young people will begin planting the various essence trees that are ready for them. In the evening, in the courtyard of the village school, there is a get-together.

9920
CSO: 5000/5817

EXPERTS PREDICT WORST DROUGHT IN 30 YEARS

MB050954 Johannesburg RAND DAILY MAIL in English 5 Oct 82 p 1

[By Gerald Reilly, Pretoria Bureau]

[Text] South Africa could be at the start of the worst drought in 30 years, agricultural experts said in Pretoria yesterday.

And studies at the Department of Geography of the University of the Witwatersrang indicate that the country is at the beginning of a cycle of nine dry years.

"That is if the trends determined in the past continue into the future," one researcher said.

At risk if the first general summer rains fail to fall within the next three to four weeks are millions of hectares of summer crops.

According to the Transvaal Agricultural Union the whole massive ploughing and planting operation on the Highveld is being held up because of the late rains.

And for the first time since 1978 a number of Transvaal districts have been declared "drought stricken."

They are the mainly ranching areas of Ellisrus, Messina, Pietersburg, Potgietersrust and the Zoutpansberg.

In some parts there has been no rain for eight or nine months. Grazing has virtually disappeared and heavy cattle deaths are feared unless good soaking rains fall soon.

A Tau spokesman said water tables and dam levels had dropped steeply in some parts.

The drought has also tightened its grip over the rest of the country.

The Department of Agriculture has agreed to a total of 35 districts or part of them being declared drought stricken so that farmers could apply for special aid.

Figrues from the Department of Environment show that dams throughout the country have 17 percent less water than a year ago. They are on average 52 percent full compared with 68 percent a year ago.

Meanwhile, Cape Town experienced its hottest day since the winter and the second hottest day this year when the temperature soared to 33.4 degrees Celsius at DF Malan Airport yesterday afternoon.

The highest temperature recorded this year was 0.01 degrees higher on 9 March.

CSO: 5000/6

SERIOUS DROUGHT EFFECTS CROPS, LIVESTOCK

MB271444 Johannesburg Domestic Service in English 1115 GMT 27 Sep 82

[Text] Drought conditions in large parts of the summer rainfall region are becoming critical and at some places dams, rivers and boreholes are drying up. Farmers in the northern Transvaal Bushveld have had to begin marketing their breeding stock. The assistant general manager of products of the northern Transvaal agricultural cooperative, Mr (Pieter Potgieter), says farmers are having particular problems with water supplies from the Limpopo River.

Game is dying off in the (Elisras area and serious losses are expected if it does not rain in the next 2 weeks. Cattle farmers in the northern national states and Venda have trekked thousands of kilometers in search of grazing, and people living in the northern Transvaal have described the drought as the worst in more than 10 years.

Prospects for wheat in the southwestern Transvaal have diminished by 15 percent in the past 3 weeks. In the northern and southwestern parts of the free state, conditions are deteriorating rapidly, and the general secretary of the Free State Agricultural Union, Mr (Piet Van Rooy), says there is not enough moisture in the subsoil, the districts of (Koppies),(Edenville) and (Hertzogville) are still emergency grazing areas.

The situation in the northwestern Cape is also deteriorating, and farmers have been cutting their herds by hundreds after losing hundreds of animals. There have been gale-force winds in the area over the past 2 months, and the parched bushes have been torn out of the ground or buried in the sand. The number of sheep in the area has been reduced by a further 30 percent. No more grazing is available at the (Spitskop) nature reserve near Upington, and about 300 head of game have had to be fed daily.

CSO: 5000/1

BRIEFS

POLLUTION CONTROL--Fifteen tons of polluting dust will be extracted from the surrounding atmosphere once Brandt Engineering has completed construction of this multi-million-rand gas-cleaning installation at the Middelburg Steel and Alloys mill plant in Middelburg. The mainframe structure of the bag-house and the partly completed radiant coolers of a sophisticated new gas-cleaning system rise above the dusty terrain of the Highveld. [Text] [Johannesburg SUNDAY TIMES-BUSINESS TIMES in English 12 Sep 82 p 7]

PROLONGED DROUGHT BROKEN--Apart from the Ladismith district, which is experiencing the worst drought conditions for 50 years, heavy soaking rains during the past 24 hours could have broken the drought in the province. Heavy rain fell in many areas of Zululand and Natal yesterday and on Tuesday night. Some areas recorded more than 20 mm. Rain fell in parts of Zululand and the Natal South Coast where cane crops have been hit badly by the prolonged dry conditions. Farmers in the Ladismith district said the drought was the worst that had been experienced in the past 50 years. Many of them told The Citizen this week that they were facing financial ruin because previously lush pastures had turned into barren wastes. They said that at least 70 mm of rain was needed urgently to give some relief to the drought and to enable them to plough. [Text] [Johannesburg THE CITIZEN in English 23 Sep 82 p 15]

CSO: 5000/5828

INDUSTRIALIZATION AND RELATED POLLUTION PROBLEMS IN GABES DISCUSSED

Industrial Boom and Pollution Problems

Tunnis LE PRESSE DE TUNISIE in French 13 Aug 82 p 2

[Article by Yahia Barouni]

[Text] On 1,200 hectares in the industrial zone of Gabes the country's most modern, most powerful, and biggest chemical industries stand one after the other.

In this zone, the whole industrial sector is deployed around heavy industry, of which the basic element and raw material is phosphate mined hundreds of kilometers away, in the region of Gafsa.

Primarily agriculturally oriented, during recent years, the Gabes region has acquired a new industrial option that makes it one of the country's most highly industrialized regions.

At first ICM [Magreb Chemical Industries]

After the construction of the port, the thermal plant, and the El Borma gas pipeline, Maghreb Chemical Industries (ICM) was the first company to move in. On its trail other factories, who were induced as a result of attraction to ICM, appeared using ICM's products as raw materials. These were "Tunisia Resources," "El Kimia," and "The Fluorine Factory" each of these factories were specializing in a very determinate product and giving it added worth before sending it into the national and international markets. Then, other firms such as SAEPA [Arab Company of Phosphate and Nitrogen Fertilizers] appeared.

Still in the industrial area and particularly in the area of chemical industries, in addition to the factory that will come into existence in Gafsa, a third ICM3 will soon enter into the production phase.

The installation of this factory will increase the region's industrial potential and particularly the sector of phosphate and its by-products.

The ICM3, which will produce 165 thousand tons of phosphoric acid a year, will export its products to Europe and Latin America.

Pollution, Industrialization's Necessary Evil

Tunis LA PRESSE DE TUNISIE in French 13 Aug 82 p 2

[Interview with Rachid Kilani, the mayor of Gabes, by Yahia Barounci; date, occasion and place not specified]

[Text] Appeal made to industries' management to find a necessary solution

Water: Chenini has been rescued

Gabes' industrialization has created a magnet effect that has made a multitude of industries and services emerge. It has also had as a result of interference in the ecological balance and an increase in pollution.

What is the town's role in this context? What is its plan and does it have enough resources.

We contacted Rachid Kilani, the mayor of Gabes with whom we had a desultory discussion.

[Question] Since the establishment of the heavy chemical industries, a pollution problem has continued to be posed with a certain acuteness. What is the municipality doing to combat this scourge?

[Answer] The pollution problem is only the logical consequence of any industrialization policy no matter what kind of industry it is.

For Gabes, a choice had to be made: either to continue developing agriculture and handicrafts...or opt for modern industrialization with all its positive as well as negative aspects, and the latter are relatively few compared to industry's economic importance for the region.

Personally I am in favor of industrialization, because it permits the creation of a large number of jobs and also has a considerable economic effect. However, this is not making us forget the pollution problem and we are issuing an appeal to the management of these industries to find effective solutions to this issue and avoid the consequences, especially since these investments in industry have been very high (approximately 60 miblion dinars).

It is also certain that citizens are continuing to demand that solutions be found and we are sure that the government will not sit back with folded arms in the face of a phenomen like this.

[Question] Industry has also increased the water problem, which the South in general suffers from. Where do things stand with Gabes?

[Answer] The water needs of Gabes' industrial zone and the establishment, of wells downstread has dried up the springs that supplied part of the oasis and particularly the Chenini oasis.

The SAEPA industries will receive a second factory whose production capacity (in 1983) will be 300 thousand tons of ammonites a year, including 230 thousand tons intended for export.

The Price of Progress

Large consumers of water and consistent polluters, the establishment of these industries has had a negative impact on the environment. But, like any industrial activity, this pollution is a necessary evil and can only be reduced.

These new ecological problems related to discharges into the water and air supply by some industries have not gone unnoticed. Indeed, big steps have already been taken but much remains to be done to fight pollution. The establishment of standards for existing installations and the prevention of pollution are so necessary to protect the ecological balance, any industrialization process necessitates and should accord a lot of effort to face the problems brought on as a logical and normal consequence of any modern industrialization.

The Take-Off and a Cruising Speed

It was in 1970 that Gabes received its industrial zone. Since then, the countryside, the environment, and the tempo of life in the region and even the country have been beating in rhythm with Gabes' heavy industries.

Likened to a genuine industrial revolution, this metamorphosis has brought Gabes fully into the twentieth century.

The two basic elements around which this industrial power is deployed are the commercial, the ultra modern port and the heating plant.

The first ICM factory to be installed was followed by SAEPA, El Kimia, and Tunisia Resources....

On the El Hamma side, the Gabes' cement factory day and night spews forth its whitish, acrid smoke. This ultra modern factory is helping to overcome the country's cement shortage and is trying to contribute to the establishment of other industrial firms and to encourage the emergence of small and medium-sized industries: a packing plant, plastic factory, medical supply firm, tiling factory....

As for the Mechanical Repair Shop of Gabes (ACM)--it ensures the upkeep and maintenance of the region's industrial units.

So Ghanouche and its industries, the gigantic cement factory of Gabes and its hundreds of employees are turning Gabes into a first-class economic and industrial zone which continues to grow, as the powerful cranes which are still standing prove.

Because of this fact, a good part of this oasis has currently been deserted. Two drillings took place in the Ras El Oued region but their water volume was insufficient hence water was brought from El Hamma and El Fejij to stupply the industrial zone. This is also going to make it possible to restore the situation and give new life to the oasis of Chenini.

[Question] Is the town of Gabes sufficiently endowed with collective equipment?

[Answer] While being a highly industrialized zone, Gabes is still lacking collective cultural and sports infrastructures.

In connection with this, the town's plan seeks in particular to make up for this deficiency. As a result, the construction of a sports complex is projected. It will cover 15 hectares and will be built in the area of southern Gabes. But to begin its construction, we are waiting for the assistance and participation of the Ministry of Youth and Sports. This complex will include, among other things, a soccer field (30,000 seats), handball, basketball, and tennis courts, and a covered swimming pool....

The town's plan also provides for the construction of a business, administrative, and cultural complex with administrative equipment, and a cultural center (theatre, ballroom...).

[Question] Health care in the town's area is one of the town's fundamental duties. What is Gabes' municipality doing in this area?

[Answer] I have to say that, in this area, the town has sufficient human and material resources and moreover is leading sanitation and cleanliness campaigns. But Gabes' big problem is its wadi, which each year necessitates expenditures of about 40,000 to 50,000 dinars without resulting in a final solution.

Indeed, to put an end to the adverse effect of this wadi by building a causeway, sizable investments which are beyond the town's ability need to be mobilized. In the urban area, the Kharabet area, a real shantytown, will see a solution. Indeed, the minister of housing formally agreed, during his visit to Gabes, to begin implementation of this project. Ten priority zones have already been defined and 1,000 new housing units will be built. The municipality has the responsibility of providing the land and the VRD [highways and various road systems] work. Thus, despite the region's rapid industrialization, the town is putting forth its maximum effort. Here the will exists but the resources are sometimes lacking.

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CSO: 5000/5027

DROUGHT DEVASTATION SEEN AS 'NATIONAL TRAGEDY'

Harare THE HERALD in English 14 Sep 82 p 6

[Editorial]

[Text] THE killer drought now devastating livestock and causing human suffering in certain parts of Matabeleland is a national tragedy. Government reaction has been speedy and commendable. So too has been the response of both local and international voluntary agencies.

Yet it is this effort, both by the Government and the international community, which the raving dissidents are seeking to frustrate.

A month ago the Minister of Labour and Social Services, Cde Kumbirai Kangai, told Parliament that dissidents were hampering the distribution of food in that province. Last week the president of the Commercial Farmers' Union, Mr Jim Sinclair, urged the Government to do something about the problem of dissidents who were bent on disrupting farming in Zimbabwe.

And last Saturday the Minister of Agriculture, Senator Norman, gave an assurance that the Government will do all in its power to restore law and order in areas with dissidents.

We have said it before and we would like to repeat it: Unless force is used, we mean brutal force, the problem of dissidents will be with us for a time to come. We are of course happy that the police have started moving in with certain types of restrictions which should send a clear message to dissident supporters that if they want peace and easy travel they have to co-operate with the army and the police.

It is now estimated that more than 20 cattle are dying each day in the affected areas. Is this really necessary? Would this have happened if the villagers and peasants had been allowed to sell their cattle to the Cold Storage Commission?

While some politicians have been quick to blame the Government for even natural disasters, they must realise that had they told their supporters to sell their cattle in time, such a catastrophe would have been averted.

CSO: 5000/5826

DEATH TOLL SOARS AS DAMS DRY UP

Harare THE HERALD in English 13 Sep 82 p 1

[Text]

THE smell of death is everywhere in the Plumtree district as the stranglehold of the drought tightens its grip on cattle in the communal lands.

Reports from all drought-stricken areas in the district paint a grisly picture of dying cattle. At the Maitengwe winter-grazing resort the dam has enough water to last until the end of the month at the latest.

But as the day of reckoning approaches, when the last drop of muddy water must disappear, communal farmers watch hopelessly as their cattle die in ever-increasing numbers.

"We have lost count. And we have stopped skinning the dead," they said.

An extension officer, Mr Octavius Madonko said the situation in Brunapeg and Mawobodo areas was equally serious.

A white farmer in Chief Tshitshi's area, about halfway between Plumtree and Brunapeg, told the district administrator, Cde Herbert Matanga, that he was buying skins at the rate of between 30 and 40 a day.

Missionaries at Empandeni Mission, about 30 km south-east of Plumtree, were also reported to be under pressure from communal people who want to sell skins to them.

At Maitengwe the evidence of cattle losses is everywhere: bleached bones, skeletons, the dead and the dying.

On the western fringes of the dam, where small pools of water are still present, dead cattle dot the dam surface, many of them left to rot in the water or dragged out of the sticky pools to die and rot on the edges.

The Maitengwe-Mahokayi canal is lined with dead cattle along all of its 20 km length.

But there are countless others that have been skinned and the meat used by owners.

Mahokayi, although commonly called a dam by the farmers who must every winter stay with their cattle away from home, is in fact a reservoir about three times the size of a family swimming pool.

It was constructed to provide water for the wildlife that teems in the area from nearby Hwange Game Park.

At night elephant, buffalo and other game get to the pool for a drink and find they have to share it with cattle.

Such an encounter usually ends in another loss for a farmer, with a cow or ox trampled to death in the water by a rogue elephant.

Six cattle died in this manner within a few days recently, according to farmers.

After drinking, the elephant like to wallow in the water, turning it into a slimy pool of mud.

As grazing is plentiful in the area, the farmers blame this muddy water for their stock losses.

Although Maitengwe is a traditional winter grazing post for farmers north and north-west of Plumtree, this winter has attracted farmers from neighbouring Tsholotsho district.

Cattle owners from Bambadzi and nearby Hingwe have started withdrawing their cattle from Maitengwe to escape the water shortage.

Their move has, however, come too late for them to escape losses, as one farmer reported losing 13 head during the past month.

The move — while it is sure to save some cattle — has created another water crisis by putting pressure on boreholes.

Local councillor, Cde Harry Nleya has called for more pumps to be installed to avoid trouble.

The only borehole with a pump is the one at Mbimba.

Last week a team of DDF maintenance men was busy installing an engine to rehabilitate the old pump at Zwana.

The team leader, Mr Solomon Dube, said he understood another engine was to be installed at a new borehole at Marula.

But Councillor Nleya said this would not solve the problem.

"What we need is an engine at Sagabe, where I understand there is a lot of water.

"Marula is too close to Mbimba and will give one area an advantage," said Councillor Nleya.

CSO: 5000/5826

COOPERATIVE EFFORT TO HELP BEITBRIDGE OVERCOME DROUGHT DESCRIBED

Harare BUSINESS HERALD in English 9 Sep 82 p 3

[Article by Des Parker]

[Text]

CRITICS of Zimbabwe's administration could do far worse than make a visit to Beitbridge to see how Government agencies are working together to put this drought-stricken district back on its feet.

Confident and optimistic district administration officials enthuse about the work, evidence of which can be seen all over this arid seemingly forgotten south-east district of the country.

But it has not been forgotten. The administrators of this, the second largest district in the country after Gokwe, have received one of the biggest cash allocations from the Government for the 1982-1983 financial year for reconstruction, development and maintenance.

Much of the 54 districts' budgets now come from foreign aid and last week Business Herald flew to Beitbridge to see how the money is being spent.

Like all of Matabeleland and the southern part of the country, Beitbridge has been hard hit by drought and the administration received $420 000 this year for primary development of water resources — sinking boreholes.

The District Development Fund — the parastatal responsible for much of the basic construction in the communal areas — is sinking 49 wells in the arid district. The Ministry of Water Resources and Development is being paid by the fund to dig shafts in the Maramania, Masera, Machuchuta, Siyoka and Dendele areas.

Beitbridge district administrator Cde Herod Sibanda said that the district had a communal population of about 67 000 who relied on subterranean water throughout the long dry season.

Like most of the country's communal people, Beitbridge's rural dwellers are subsistence farmers whose main source of wealth is cattle.

After the summer rains have tailed off, all surface water soon dries up and the rural villagers are obliged to dig often more than a metre into the sandy river beds to find water for them and their animals.

But at times during the rains people can be cut off for weeks as rivers flood.

In the more densely populated Zezani area in Siyoka communal land near the main Bulawayo-Beitbridge road, a scheme is proposed to remedy the situation.

CSO: 5000/5825

BULAWAYO FIRM MARKETS SOLAR-POWERED WATER PUMP

Harare THE HERALD in English 14 Sep 82 p 6

[Text]

VISITORS to the Rural Development Technology 82 Exhibition will see some of the latest water extraction and pumping equipment.

Bulawayo's Ames Engineering Ltd will feature its latest in solar-powered pumps, a different innovation from the known products of the same category, says Mr Ted Prong, Ames's official responsible for the company's pump section — flow control division.

"We will also show various pumps that can be used for the extraction of water in rural areas, and in this group of products, we will concentrate on what is called the Grundfos system," he said.

The Grundfos equipment is made by a Danish company of the same name.

"Grundfos has gone into methods of extracting water from the ground for Third World nations, and we will have an expert engineering scientist from Denmark for this occasion.

Ames Engineering has been appointed an agent of Harare's Tube and Pipe Company, and has gone into contracts to supply aluminium and steel piping for irrigation purposes.

"We have also been appointed agent for Lacoste Irrigation (Pvt) Ltd for the supply of sprinklers and risers," said Mr Prong.

Dunlop Zimbabwe Ltd will exhibit their popular version of a hand-operated pump, said Mr J J Knox, Dunlop's District Manager (Consumer and Industrial — South).

"This 'Bumi' pump has been extensively bought in Zimbabwe, and we have exported large consignments of it to Zambia, Botswana, Nigeria, Kenya and Indonesia," he said, adding that it is manufactured by one of the company's Harare-based subsidiaries.

Mr Knox said there will be other implements, including a hand-operated winnower, a soil-injector, plus tractor tyres, trailers and a range of hoses on Dunlop's 45 sq-metre stand.

"This is an excellent opportunity for us to show what we have to offer for rural development, and we hope the exhibition will be well attended internationally as well as locally."

The general manager of Mine Elect of Bulawayo, Mr K G Kendal, said his company will display locally made hand-operated diaphragm pumps.

"This is a very useful pump in the rural areas, and the Government has bought quite a large number for its water and reconstruction schemes."

Mr Kendal said the hand-operated diaphragm pump is of a low-technology, unlike another, called the Braemar pump, made locally by the same company but under licence from West Germany.

"The Braemar pumps are contrifugal pumps, priced very reasonably, are easily portable, very efficient and are mounted on diesel or petrol engines," he said.

Mr Kendal said Mine Elect will also show a solar-powered pump manufactured in West Germany.

About the exhibition generally, Mr Kendal said: "As an attempt to show the communal land people what equipment we have for rural development, I think the exhibition should have been held at a smaller centre like Gwanda or Nyanda where communal land residents would have been close at hand.

Mr Kendal said his company does not export its products because prices abroad are not competitive, adding that the initial idea in manufacturing by the company was to meet the local market.

CSO: 5000/5826

DETAILS ON WATER PUMPING PROJECT GIVEN

Harare THE HERALD in English 16 Sep 82 p 3

[Article by Des Parker]

[Text] The first of 170 sand extraction water pumps bought for Zimbabwe by the European Economic Community (EEC) went into action on a dry river bed in the Gwanda district last week.

The pumps are being put into operation under the drought relief programme for Matabeleland to draw water for cattle from dry river courses in the areas of direct shortage.

Including 4 500 litre corrugated iron storage tanks, piping and drinking troughs, all obtained locally, each extraction unit has cost the EEC about $2 000 from the $750 000 emergency drought aid set aside this year.

Saturated

The Australian-made 3-horsepower Briggs and Stratton motors can pump 9 000 litres an hour with no head and 4 500 litres hourly with a head.

Each pump is attached to the perforated sand extraction pipe which is sunk into the water-saturated ground. A filter sifts out the larger pieces of material and the water is pumped to a storage tank.

Thirty of the units have been given to the District Development Fund and will be set up in the critically affected districts of Gwanda, Plumtree, Lupane, Tsholotsho, Nkayi, Inyati and Hwange. The remaining 140 plants will be established by the Ministry of Water Resources and Development.

Maintenance is the responsibility of DDF mechanics and ministry workers while district councillors will control pumping, the release of water into the drinking troughs and the watering time for beasts.

A DDF official at the site on the Mtshabezi River in Gwanda district said pump locations are chosen by testing the amount of water in the sand with borehole rods.

The first pump was situated where about 25 cm of water was found. Other spots tested on the Mtshabezi showed as little as 7 cm was available, he said.

He said it would be necessary to mount the pumps on semi-permanent concrete bases but that they were more or less temporary structures that would be dismantled and placed in storage for a rainless day. Piping, tanks and troughs would remain.

EEC officials, including the head of the community's Zimbabwe delegation, Mr Andre Vanhaeverbeke, expressed satisfaction with the operation of the Gwanda plant during a visit last week.

He said it had been hoped to put funds from the three-year $30 million National Indicative Programme (NIP) towards drought relief but time was of the essence and the emergency fund was immediately established.

From this fund about $210 000 went on the sand extraction units and the remaining $540 000 on emergency food distribution. The EEC is paying the costs of operating Government and DDF transport in the latter programme.

Mr Vanhaeverbeke said the sand extraction method had proved the easiest and most efficient way of using sub-surface water but because of the time taken to put out supply contracts to local tender and to import the pumps, the project was only now getting off the ground.

The emergency funds for water supply had been available since May.

The EEC head said he believed the plan had been implemented timeously before the really critical shortage of October and November.

The surveying of the country's water needs under the NIP by a European engineer would begin soon when the Ministry of Water Resources and Development sent the EEC its terms of reference.

Six million dollars of the programme is earmarked for communal lands water supply development.

Seventy-five percent of the total package is a grant and the remainder a soft loan.

CSO: 5000/2

BRIEFS

DROUGHT KILLS CATTLE--BULAWAYO--COMMUNAL farmers in the Bambadzi area of Plumtree are losing up to 20 head of cattle each day through lack of water, according to reports reaching the Under Secretary (Development) for Matabeleland South. Cde Jerry Nyathi said in Gwanda yesterday that the water situation in the area had become extremely serious, with cattle getting stuck in muddy dams in their quest for water. Reports reaching him painted a grim water shortage picture, with neighbouring Botswana refusing to allow Zimbabweans to fetch water from the Maitengwe river on their side of the border. "As provincial representatives of the Government, we have failed to persuade the Botswana authorities to allow us to pump water from the river on their side of the border," he said. He had decided to ask the Ministry of Foreign Affairs to intercede on behalf of the People of Bambadzi. The resettlement committee of the Gwanda District Council yesterday decided to establish the number of cattle in three areas before recommending the number each farmer will be allowed to send on a relief grazing scheme. The decision follows a Government relief offer of two ranches in Gwanda South to blunt the effects of the drought which threatens thousands of cattle belonging to communal farmers. The ranches have a total of 38 680 ha and the offer is on condition that only 5 000 head are grazed there until December 31. [Text] [Harare THE HERALD in English 7 Sep 82 p 1]

SILT THREAT--NYANDA--UP to 100 000 people in the Sabi River Valley will lose their livelihood if conservation methods are ignored and erosion silts up dams in the South-Eastern Lowveld, peasant farmers have been told. Mr Onisimon Zishiri, the Assistant Provincial Extension Officer, said at a field day at Musovi near here, that the water system division of the Sabi-Limpopo Authority had complained to the Secretary for Natural Resources that there was siltation of the South-Eastern Lowveld's dams, the Bangala, Majirenji and Siya dams and the Esquilingwe weir. If farmers adopted conservation methods by preventing run off and the uncontrolled accumulation of water, grass cover could be maintained and erosion would be checked, he said. But the country's natural resources could be rapidly destroyed if people foolishly ignored conservation practices and failed to use resources with care and efficiency. Mr Zishiri also praised a local organisation, the Tagwirei Club, for its co-operative efforts in planting 565 bluegum trees on a stream bank in a single day. The club also intended to build its own dam both to improve its drinking water supply and to use for irrigation. [Text] [Harare THE HERALD in English 7 Sep 82 p 3]

BANDITS HAMPER DROUGHT RELIEF--THE Minister of Labour and Social Services, Cde Kumbirai Kangai, told the House of Assembly yesterday that dissident activities in the Lupane and Tsholotsho areas were hampering the distribution of drought relief food to residents. He said apart from that, the relief programme had gone ahead smoothly. [Text] [Harare THE HERALD in English 8 Sep 82 p 1]

DROUGHT FIGHTERS--ABOUT 90 water engineers and technicians will soon arrive in Zimbabwe to help beat the drought following a recruitment drive overseas by the Ministry of Water Resources and Development. Deputy Minister Cde Joseph Kaparadza said in Harare yesterday that 14 engineers from Pakistan would arrive in the country between now and next month. He said the Government was hoping to launch another recruitment drive in India and that negotiations were going on with the Australian government for engineers and technicians. "We have so far been promised six engineers by Britain, two of whom have already arrived," he said. The experts would be sent to the worst-hit areas where they would be expected to help local people drill boreholes. More boreholes had been drilled in badly affected areas and it was hoped that the situation would improve by the end of the year. "It seems that we are coping with the situation especially in the Gwanda and Mberengwa areas," he said. Cde Kaparadza appealed to people in the areas not to panic as the Government would do everything possible to help them. [Text] [Harare THE HERALD in English 13 Sep 82 p 3]

CATTLE DEATHS--MORE than half the cattle bought in by the Cold Storage Commission at the last sale in Plumtree about 10 days ago died soon afterwards, the Assembly heard yesterday. Of 603 animals purchased, 311 died within hours, the Minister of Agriculture, Senator Denis Norman, told MPs. Answering points raised during the committee of supply debate on the vote for his ministry, Senator Norman said that he had told the CSC to stop buying animals which were not going to survive. He had every sympathy with Matabeleland farmers. Earlier in the year the CSC had bought reject stock as a form of aid to drought-stricken farmers. But now the situation had become so bad that some animals were dead on arrival. The only answer was to move the cattle out of the drought-stricken areas. It was not possible to move food to them and the water position was desperate. Regrettably, it had only been possible to buy some 67 000 head of cattle, compared with the 200 000 hoped for. Senator Norman said there had been no outbreak of foot-and-mouth disease since last November. Once a full 12 months had elapsed, European Economic Community officers would carry out an inspection with a view to negotiating beef exports to EEC countries. There had been sporadic outbreaks of anthrax, but 2,6 million head had been vaccinated and it was hoped the disease would eventually be eliminated. [Text] [Harare THE HERALD in English 15 Sep 82 p 9]

CSO: 5000/2

EFFECT OF ENVIRONMENTAL POLICY ON AIR QUALITY ASSESSED

Duesseldorf HANDELSBLATT in German 2 Sept 82 p 6

/Article by Prof Albert Kuhlmann, head, TUeV Rhineland: "Ten Years Environmental Policy Had Little Impact on Air Quality"/

/Text/ For about 10 years environmental control in the FRG has been proceeding increasingly in political terms. As far as legislative action is concerned, efforts to keep the air free of pollutants have dominated. As late as 1972, at the time of the first U.N.Conference on the Environment in Stockholm, the Federal Government presented a fairly optimistic statement. Ten years later, the year of another U.N.Conference in Nairobi, the balance sheet submitted offers little that is pleasing. Prof Albert Kuhlmann, head of the TUeV Rhineland, is dealing with a type of failure of environmental control, "acid rain," that has of late been discussed more and more. It is acid rain that seems to be one of the factors responsible for dying forests. The bottom line:

-- Despite professions of and actual environmental controls, emissions of sulfur oxide have remained the same since the mid-1960's.

-- Nitric oxide emissions have increased substantially.

-- Power plants are the main culprits with regard to both pollutants.

-- Special exemptions for older power plants are increasingly questionable.

-- Acid rain is probably caused by both pollutants. At the same time traffic contributes 30 percent of nitric oxide emissions.

-- As critics warned long ago, the construction of high chimney stacks is the wrong approach. The stacking up of several waste gas precipatetes increases immission in distant regions.

-- Restrictions on emission and desulfurization are the proper approach to clean air.

-- We can no longer afford to wait for international steps, even if Federal German efforts benefit other countries.

After all, considered overall, the FRG is an exporter of air pollutants and causes trouble to its neighbors.

Since 1977 the FRG has been involved in the program "measurement and evaluation of the large-scale diffusion of air pollutants (EMEP)" of the U.N.Economic Commission for Europe (ECE). The first results of this program concerning the spread of sulfur dioxide emissions are now to hand. According to the report, we in Europe (including the Soviet Union) must expect an annual emission of 58 million tons sulfur dioxide (SO_2). The FRG is in fifth place, behind the Soviet Union, Great Britain, Italy and the GDR. Its emissions amount to 3.63 million tons sulfur dioxide per annum.

Depending on the estimates used for annual SO_2 emissions in the mid-1960's, they have either remained cirtually the same or declined by about 15 percent.

We may assume that 95 percent of SO_2 emissions are due to energy conversion and only about 5 percent to non-energy sectors, such as iron and steel or chemicals. Considered severally, power plants account for about 45 percent according to these estimates, industrial furnaces for 33 percent, households and small businesses for 15 percent, traffic for 2 percent.

The decline in SO_2 emissions by power plants recorded in the first half of the 1970's was largely due to a lower consumption of fuels. No further reduction in fuel use is to be expected. In the course of the replacement of older plants, SO_2 emissions due to fuel use may decline somewhat in the long term. However, the increase in the use of coal in power plants may have the opposite effect.

Emission of Nitric Oxides

The emission percentages of SO_2 reported for the Federal territory are largely confirmed by data from the polluted regions. Taking the average of six important polluted regions, we get the following SO_2 emission percentages: Emitter group industry: about 90 percent, emitter group households and small businesses: 9 percent, emitter group traffic: 1 percent.

Relative to Europe (excluding the Soviet Union), we have a 1973 estimate for nitric oxide (NO_x) emission of 6.6 million tons (calculated as NO_2)--an almost 100 percent increase compared with 1959. Relative to the FRG also NO_2 emissions have risen steadily along with energy consumption, most of all in the traffic sector. For 1978 the Federal Government reports nitric oxide emissions (calculated as NO_2) amounting to 3 million tons.

Some 99 percent of NO_x emissions are accounted for by energy conversion. According to the estimates power plants are responsible for 30 percent, industrial furnaces for 25 percent, households and small businesses for 6 percent and traffic for 30 percent. The percentage of emissions by power plants and industrial furnaces has declined by an annual average of 1 percent from 1960-1980, nevertheless they still hold the lion's share at almost 65 percent. The percentage due to traffic increased proportionately in the same period.

The situation in the regions affected conforms to the percentages of NO_x emissions reported for the Federal territory only as regards the general trend. Taking the average of six important polluted regions, NO_x emissions by industry account for 84 percent, by traffic for 12 percent and by households and small businesses for 4 percent.

Immission of SO_2 and NO_x

The SO_2 immission value of the Technical Directive for Air Quality (TA-Air) of 140 microgram per cubic meter is generally observed, except for local exceptions in the Ruhr region and Berlin. The quality goal of 50 microgram per cubic meter in the average of the year, set by the WHO, on the other hand, is exceeded at most measuring locations. In the 1960's many regions recorded a substantial decline in SO_2 immissions. In the meantime the majority of the measuring stations demonstrate a changing trend with features of long-term stagnation. Several clean air statopms om fact appear to record a slow rise in SO_2 concentration in the air. The annual average measurements at many clean air stations are now around 20 microgram per cubic meter. That is the damage threshold for conifers and other sensitive fauna as ascertained by biologists some time ago. While pollution in some problem areas has eased following the widespread disperson of pollutants by way of high chimney stacks, more distant regions have thereby experienced greated pollution.

Measurements carried out by the Federal Office for Health and the Federal Office for the Environment have recorded a rising trend of nitric oxide ever since the early 1960's. This trend has weakened somewhat since 1976. Considered over a wide area, the 1976 TA-Air immission values are not exceeded. In addition to the increase in pollution in the conurbations, a slight rise is to be noted in relatively little polluted regions.

Within the framework of the above mentioned ECE program the annual total of sulfur dioxide deposited in the participating 28 countries was ascertained. This total was in turn divided into three parts--domestic emissions, foreign emissions and a third part. The FRG, for example, must expect an annual sulfur deposit of 1.39 million tons. This amounts to 77 percent of our own sulfur emissions. Consequently the FRG must be considered an exporter of sulfur dioxide and its secondary products. Domestic sources account for 45 percent of sulfur deposits, 48 percent are due to foreign and 7 percent to "general background" pollution.

At this point I must mention the so-called politics of high chimney stacks: It has been claimed that raising a chimney stack from, let us say, 200 meters to 300 meters first of all definitely lowers measurable pollution at ground level in the vicinity (100 km), and that secondly a reduction may also be calculated for medium distances from 100-1,000 km, although it would be below the detectable limit, and that thirdly more sulfur will get to regions more than 1,000 km distant but that, with some exceptions, these concentrations are so small as to have undetectable effects.(in terms of measuring technology). We must remember, though, that this reasoning refers to a single chimney stack. When many high stacks are involved, the overlapping of waste gas emissions alters the situation quite substantially. It is impossible, therefore, for a policy of preserving air quality by raising chimney stacks to be successful. On the contrary, the height of chimneys should

be restricted to about 200 meters, even if their dimensioning with the nomogram TA-Air results in higher values.

Considering distant dispersion, all that matters are emissions or, to put it more accurately, the ratio of the volume of emission to the volume acceptable to nature without inflicting harm and capable of being returned to the circulation of substances. Any policy aimed at preserving air quality must therefore emphasize the restriction of emissions and, for the sake of justice, by all emitter groups.

Effects of "Acid Rain"

If all the sulfur emitted in the FRG were to descend equally on Federal territory, we would have to calculate an annual deposit of about 7.3 gram per square meter. Recorded in fact for the Federal territory is a median deposit of 5.5 gram per square meter. The badly polluted areas of the Ruhr region suffer 15 gram per square meter of sulfur pollution. It must therefore be a prime future objective more accurately to ascertain and project the introduction of sulfur in the soil and the waters.

Depending on the concentration of airborne pollutants, sulfur dioxide and its seocondary products are bound to contribute to an increase in the acid content, in other words a lowering of the pH value of rainfall. To this day we lack a serious research result telling us whether the quantities of sulfur compounds dispersed are enough by themselves to cause the drop in pH values noted. Initial appraisals seem to cast some doubt in this respect. We must therefore apportion to nitric oxides also some of the blame for the emergence of acid rain. It is impossible, though, to pronounce any conclusive verdict about the effects of acid rain with regard to a change in biological systems.

Hardly disputable, on the other hand, are indiciations of the acidification and biological pauperization of Scandinavian lakes. It is not surprising, therefore, that the Scandinavian countries have noted a connection between SO_2 emissions in the industrial centers of Europe and ecological damage in distant regions, and that they clamor for relief at international level.

The conclusions necessarily arising for any policy to preserve air quality are the following:

1. Counter measures must emphasize emissions, in other words technical equipment--and, for the sake of fairness, this must apply to all emitter groups. Simply to opt for high chimney stacks is a policy doomed to failure. Chimney heights should be restricted to a maximum of 200 meters.

2. We should not wait for international action, even if our efforts incidentally benefit other countries. It is far too difficult to assign national proportions to the border crossing dispersion of pollutants.

For the longest time the only approach chosen was that of limiting SO_2 emissions by way of the sulfur content of fuels. This approach continues to be appropriate and indeed the only one possible with regard to small furnaces. There is some dispute about the borderline between small furnaces where this approach is satisfactory, and large furnaces where further emission restrictions must be imposed. The

preliminary draft of a decree on large furnaces defines the limit ofs scope as 1 megawatt thermal output. For the limitation of sulfur dioxide emissions by furnaces using liquid fuels the draft is satisfied with a regulation relating only to fuel up to a thermal capacity of 5 megawatt. It is imperative to arrive at a compromise fairly close to the two figures listed.

In present circumstances as dictated by refining techniques and the oil market, we cannot justify an even more stringent restriction on the sulfur content of heating oil EL--to below 0.3 percent. We should, on the other hand, consider whether the use of low sulfur coal should be staggered by regions with different initial stress or by certain meterological conditions and terrains.

Concerning the plant-related restrictions on SO_2 emissions by large furnaces, the TA-Air sets out that sulfur oxide emissions "must be limited as far as possible," in other words consonant with the prevailing standard of technology. A general minimization order, left to be precisely defined in the dialogue between operator and permit authority, would be both contentious and too weak. The establishment of definite critical values would be more effective. It is therefore appropriate that the draft large furnace decree is the first to include emission critical values.

Large furnaces with a waste gas flow exceeding 500,000 cubic meters per hour may no longer contain more than 650 milligram SO_2 per cubic meter waste gas--excepting special provisions for conversion to solid fuels or for power-heat coupling. True, the cost is considerable, but all operators should be able to agree the 650 milligram per cubic meter. From today's standpoint another reduction in critical value would not produce benefits justifying the disproportionately high cost.

In another first the large furnace decree is intended by critical values also to define "as far as possible" the obligation to lower emissions, expressed by the TA-Air in general terms only. It is another measure to be welcomed and supported in the interest of environmental control.

Changing Over Old Power Plants

Still, increased requirements on the construction and operation of new plant will not suffice if we wish in future to arrive at noticeable reductions in SO_2 and NO_x emissions. In fact, we must expect that the problem of higher costs may cause technically obsolete plants to be kept in operation longer than desirable. It will be imperative to advance in the direction indicated by the large furnace decree--that is to subject existing furnaces to the requirements of reduced emissions after a period of transition. Regulations for old power plants should be arrived at by taking due account of cost and environmental benefits. They are certainly indispensable if the project as a whole is to make sense. Due to entirely physical-chemical reasons this does not--unfortunately--apply to nitric oxide emissions from furnaces. As things are we must here confine ourselves to new plants.

The preliminary draft of the large furnace decree does indeed exempt those old power plants from the duty to instal waste gas desulfurization devices, that offer

no rpsoepct for possible enforcement at a future time or for being able at least to make room for an appropriate installation. It is risky, though, to permit many exceptions for older plants.

Motor Vehicles: Defeatist Compromise

NO_x emissions in the traffic sector account for a substantial proportion of total NO_x emissions. In view of this fact we must describe as unsatisfactory the compromise provision arrived at within the scope of the ECE (seris 04 of regulation R 15) on emissions from vehicles with internal combustion engines. Moreover it will presumably not take effect in the FRG until 1983. Given the high critical value, the limitation of only the total NO_x and hydrocarbon emissions may have the result that all efforts will concentrate on the reduction of hydrocarbon emissions proceeding parallel to the lowering of carbon monoxide, while no improvement occurs with regard to NO_x. The legislator should aim at least at the total critical value--lower by a factor of 2-3--proposed by the FRG but not accepted by the ECE, if need be by going it alone. Considering the inevitable lead times for the introduction of new engine conceptions, it is to be welcomed that talks are now proceeding between the Federal Government and the auto industry. They should soon result in an agreement.

Concerning restrictions on SO_2 emissions, a directive by the EEC Council obligates the member countries to proceed to the general adjustment of their legal regulations. The directive establishes critical values that may not be exceeded in the territory of the Community after 1 April 1983. It also stipulates standard values designed to serve long-term health and environmental precautions. The gradual application of the standard values set therein for SO_2 (from 40-60 microgram per cubic meter in the average of the year) is to be linked with certain natural conditions in the respective region.

In addition to checking pollutant concentrations in the air, it would also be necessary to require regular checking of the pH values of rainfall and the examination of soil samples--possibly as part of the immission testing programs for permit applications in polluted regions and regions deficient in lime and with a delicate vegetation. Experts would have to draw up standard values to appraise the results of such tests.

We must in any case appreciate that critical values (related to rainfall and the soil) for generally diffused substances are relevant only to spatial environmental politics, air quality preservation plans, and so on. It is not usually possible thereby to establish a relation to a specific emitter. Left to us here are only the lowering of emissions and proper controls.

Consonant with the principle of precautions to safeguard the lives and limbs of its citizens, the government cannot avoid its duty to lower pollution. At the same time rashness may be harmful. It is liable to result in inefficiency and the wrong employment of capital, something that is difficult to correct later. "Acid rain" is an environmental problem that must be dealt with, no more and no less.

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NEW ANTI-POLLUTION MEASURES FOR ATHENS

Minister Details Plan

Athens EXORMISI TIS KYRIAKIS in Greek 29 Aug 82 p 11

/Text/ According to Housing, Urban Planning and Environment /YKhOP/ Minister Andonis Tritsis, the additional measures the Ministerial Council announced for coping with the pollution of the atmosphere complement the anti-pollution measures announced 13 June and which are now being implemented successfully. He added that the foundations have already been laid for keeping the environment clean.

The minister pointed out that the staffing of the Athens Environment and Pollution Control Program /PERPA/ which is the main agency for the protection of the environment is being completed and that in 1 month more than 500 professionals expressed interest in working on its staff. The first phase of the program provides for incorporating into PERPA the environment pollution control echelons of 120 professionals.

At the same time, 360 industries which contribute to pollution have been listed and measures are being drafted to have them conform to approved specifications. The minister pointed out that the implementation of the measures for reducing pollution will be implemented in varying degrees depending on the level of atmospheric pollution in each case. He said if a large concentration of taxis is observed in the center of Athens during the period the circulation of private cars is restricted, then it is possible to take measures for restricting the number of taxis. Tritsis added that the improvement in the quality of fuels and the permanent restrictions /of cars/ in the center of the city will considerably improve life in Athens.

On the other hand, the recent decision of the Council of Ministers for permanent as well as special restrictive measures prove that the government is determined to solve the problem of the "cloud" which for years now has oppressed Athenians. The measures approved are:

With regard to fuels: 1. As of 1 October 1982, the mazut (crude oil) used by industries with a sulfur content of 1 percent will be substituted by mazut with 0.7 sulfur content.

2. As of 1 December 1982, diesel oil containing 0.5 percent sulfur will be substituted by petroleum containing 0.3 percent sulfur for all uses.

3. As of 1 June 1983, gasoline with a lead content of 0.4 grams per liter will be replaced by gasoline containing 0.15 grams of lead per liter.

This improvement in the fuels used will result in a reduction by 32 percent in the emission of sulfur dioxide and by 62 percent in the case of lead. For improving these fuels a sum of about 1.5 billion drachmas will be spent annually.

With regard to circulation of vehicles: From 15 September until 15 December the following restrictions will be in force:

1. For the 15 September-15 December period: From 1900 to 2130 hours private cars are restricted in the center of Athens, an area which includes the inner circumference of the city.

2. For the 1 November-15 December period, in addition to the above measures the use of private cars on a rotation basis will be restricted in the same Athens area from 0930 to 2000 hours.

In addition to the above, the primary and secondary measures used in the past on days of peak pollution will also be in effect.

These measures are part of the general anti-pollution policy announced on 15 January 1982. This policy is already being implemented systematically in accordance with the timetable announced in June and simultaneously with the measures announced in the summer concerning industry, central heating, vehicle circulation and automobiles. The need for reducing the restrictive and special measures will depand on the degree of implementation of this policy.

Finally, the government believes that all citizens and productive classes will contribute, as they did during the summer period, to the success of these measures whose aim is to protect our very lives.

Additional Details

Athens TA NEA in Greek 29 Aug 82 p 2

/Excerpts/ The "worse polluting" industries in the Athens basin total 360, YKhOP Minister Andonis Tritsis said yesterday. At the same time, Energy and Natural Resources Minister Kouloumbis was announcing that industry as a whole is responsible for producing 54 percent of sulfur dioxide, heating units 32 percent, buses and trucks 11 percent, and private cars and taxis 3 percent.

Tritsis said that the measures for reducing industrial production /sic/ and industry fuels are not permanent for the whole 15 September-15 December period because such measures cannot be adopted "horizontally" for each industrial branch. Each industry has its own particular operational problems.

The inspection of industrial units will be done by the Environment Control Echelons. Three to four such echelons will be established in each of the four zoning areas of the city.

The minister added that the measures will be applied in their totality only in cases of high pollution and selected industries will be reducing the use of fuels by 30-40 percent depending on whether the measures are first or second degree. On the other hand, he said that the government has not abandoned its decision to move out of the Athens basin the industries which will be finally selected. The preliminary work on this question is continued. He also said:

1. A pollution problem exists in Piraeus also but it is not as great as in Athens. A study will be undertaken but in conjunction with the port's operation.

2. Those exempted from the restrictive measures as concerns privately owned cars will be announced soon. A committee is studying the matter.

3. When special measures are in effect and it is established that the taxis continue to crowd the center of the city, as happened last June thus impeding the normal movement of the buses and electric trolley cars, then measures will be taken against them--the odd-even system will be put into effect for them also.

Will Use Gas

In the context of the measures for coping with the pollution problem, at least 60 industries in the Athens basin will be forced to use gas instead of mazut. Concerning the quality improvement of the fuels and the establishment of /exhaust/ inspection stations for cars, a reliable source of the Energy Ministry, said yesterday:

"The restrictions on automobiles will be studied within 1983 on a different basis and in conjunction with the studies already in progress by the Ministry of Housing, Urban Planning and Environment."

In the meantime, according to reports, one should not rule out the reactivation of the Public Power Corporation plant in Keratsini within the context of the general policy of substituting mazut for gas in industrial units.

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BRIEFS

ELEVSIS OFFICIALS COMPLAIN--In a unanimous decision, the Elevsis Municipal Council considered as pressing the need to classify the Thriasio Basin as "a poor environmental area" in accordance with article 6 of the related act of legislative content by the Ministry of Planning, Housing and Environment /YKhOP/ in order to avoid permanently the danger of relocating the Athens environmental problems /relocation of plants/ to the Elevsis area as was attempted by presidential decree 791/81. The council feels that YKhOP should activate article 4 of the same act of legislative content in order to assist financially the municipality's effort to have a pollution measuring station established in the area. The council also protests the unexcusable interruption by the Environment and Pollution Control Program /PERPA/ of the pollution measurements despite the many declarations that the Thriasio Basin is included in the complex of the stations for pollution measuring and demand their immediate resumption. /Text/ /Athens RIZOSPASTIS in Greek 28 Aug 82 p 2/ 7520

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