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**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE  
EXECUTIVE DIRECTORS  
ON A PROPOSED LOAN  
IN THE AMOUNT EQUIVALENT TO US \$13.4 MILLION  
TO THE  
REPUBLIC OF TUNISIA  
FOR A  
MINING TECHNICAL ASSISTANCE PROJECT**

**August 15, 1983**

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### CURRENCY EQUIVALENTS

Currency Unit - Tunisian Dinar (TD)

US \$1.00 = TD0.650

TD1.00 = US \$1.54

### Fiscal Year

January 1 - December 31

### ABBREVIATIONS

BDET	-	Economic Development Bank of Tunisia (Banque de Développement Economique de Tunisie)
CPG	-	Gafsa Phosphate Company (Compagnie des Phosphates de Gafsa)
DMG	-	Department of Mines and Geology (Département des Mines et de la Géologie)
GDP	-	Gross Domestic Product
KCl	-	Potassium Chloride
K <sub>2</sub> O	-	Potassium Oxide (nutrient element in potash fertilizers)
ONM	-	National Mining Office (Office National des Mines)
P <sub>2</sub> O <sub>5</sub>	-	Phosphorus Pentoxide (nutrient element in phosphate fertilizers)
SDICS	-	Development Company of the Chemical Industries of the South (Société de Développement des Industries Chimiques du Sud)
SOP	-	Potassium Sulphate
tpy	-	metric tons per year

MINING TECHNICAL ASSISTANCE PROJECT

LOAN AND PROJECT SUMMARY

Borrower: Government of the Republic of Tunisia

Beneficiaries: (a) Gafsa Phosphate Company (CPG) for phosphate component  
(b) National Mining Office (ONM) and CPC for potash component  
(c) ONM for mining policy component

Amount: US \$13.4 million equivalent, including a capitalized front-end fee

Terms: 17 years, including four years of grace, at the standard variable interest rate

Onlending: The Government would onlend US \$10.3 million to CPG at 10.5 percent interest for 17 years, including 4 years of grace.

Project Description:

The project would support the Government's objective of rationalizing and developing the mining industry by providing consultancy services for the following project components:

(a) Phosphate. The efficiency and profitability of CPG's existing operations would be improved, and feasibility studies on four open pit deposits prepared;

(b) Potash. This component would lay the ground for the establishment of a potentially important new export industry. A first phase would develop technical and economic information on three potash deposits in Southern Tunisia to identify the optimal configuration of a potash project. In a second phase, the feasibility of the option selected in Phase I would be studied in detail and investment proposals prepared; and

(c) Mining Policy. This component would analyze and define the role of ONM in mineral exploration and development, and define organizational, staffing and budgetary requirements to help ONM meet its objectives. The component would enhance the ability of the Government and ONM to plan and implement a rational mining exploration policy.

Benefits and Risks: The project would (a) help reestablish the profitability and evaluate CPG's most promising investment projects to lay the ground for efficient output expansion of the phosphate industry, thus contributing to the diversification of economic growth and exports; (b) lay the ground for the establishment of a potash industry, a potentially important new export industry; and (c) improve the institutional framework for exploration policy.

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Potential project risks relate to the commitment of CPG to the project in case of changes in management, and to the uncertainty of the potash feasibility studies leading to viable investment projects. Both of these risks are small due to (a) the widespread awareness in CPG and Government of the long-standing deficiencies in the company which cannot be properly addressed without outside assistance and (b) the promising results of the preliminary work already done to produce potassium sulphate (a premium potash product) from Tunisian brines.

<u>Estimated Project Cost:</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	\$ million		
<u>Phosphate</u>			
Organization Studies	0.5	1.7	2.2
Training	0.4	1.0	1.4
Feasibility Studies	<u>0.8</u>	<u>4.2</u>	<u>5.0</u>
Subtotal	<u>1.7</u>	<u>6.9</u>	<u>8.6</u>
<u>Potash</u>			
Phase I			
Studies	1.9	3.5	5.4
Equipment	1.3	2.0	3.3
Phase II			
Studies	1.0	0.8	1.8
Equipment	<u>0.5</u>	<u>0.3</u>	<u>0.8</u>
Subtotal	<u>4.7</u>	<u>6.6</u>	<u>11.3</u>
<u>Mining Policy</u>	0.1	0.2	0.3
Total Base Cost	6.5	13.7	20.2
Physical Contingencies <u>/1</u>	0.5	1.3	1.8
Price Contingencies <u>/1</u>	0.7	1.9	2.6
Total Project Cost	7.7	16.9	24.6
Front-end Fee on Bank loan	-	0.0 <u>/2</u>	0.0 <u>/2</u>
Total Financing Required	<u>7.7</u> <u>/3</u>	<u>16.9</u>	<u>24.6</u> <u>/3</u>

/1 Does not include contingencies for French-financed part of Phase I of potash component (Zarzis) for which the full cost is included in the base cost of that component.

/2 \$33,416

/3 Includes about \$0.5 million in taxes and duties.

<u>Financing Plan:</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
		<u>\$ million</u>	
Government	5.4	-	5.4
CPG	2.3	0.2	2.5
US Trade and Dev't Program	-	0.2	0.2
Mixed French credit	-	3.1	3.1
Bank	-	13.4	13.4
<b>Total</b>	<b>7.7</b>	<b>16.9</b>	<b>24.6</b>

<u>Estimated Disbursements:</u>	<u>Bank FY</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
		<u>\$ million</u>			
Annual		2.1	5.5	4.7	1.1
Cumulative		2.1	7.6	12.3	13.4

Staff Appraisal Report: None

Maps: IBRD No. 10273R2  
 IBRD No. 17363  
 IBRD No. 17120

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

REPORT AND RECOMMENDATION OF THE PRESIDENT OF THE IBRD  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN TO  
THE REPUBLIC OF TUNISIA  
FOR A MINING TECHNICAL ASSISTANCE PROJECT

1. I submit the following report and recommendation on a proposed loan to the Republic of Tunisia for the equivalent of US \$13.4 million to help finance a mining technical assistance project. The loan, which includes a capitalized front-end fee of 0.25 percent on the Bank loan, would have a term of 17 years, including 4 years of grace, at the standard variable interest rate. The Government of Tunisia would onlend the equivalent of \$10.3 million of the loan to Compagnie des Phosphates de Gafsa at 10.5 percent interest per annum, for 17 years including 4 years of grace. Cofinancing has been obtained in the form of a mixed credit from France equivalent to \$3.1 million and a \$0.2 million grant from the US Trade and Development Program.

PART I - THE ECONOMY /1

2. A special economic report entitled "Tunisia - Review of the Sixth Development Plan (1982-86)" was prepared by two economic missions which visited Tunisia in October 1981 and March 1982. A draft of the report served as a basis for discussions with the Government on macroeconomic policies and sectoral investment programs. The final version of the report (No. 4137-TUN) includes a main volume dated March 16, 1983, and a second volume on sectoral aspects dated June 29, 1983. This part reflects the report's findings. Country Data sheets are attached in Annex I.

3. Much of Tunisia is arid or semi-arid. Only three percent of arable land is irrigated, and areas where rainfed agriculture is possible are subject to severe year-to-year fluctuation in rainfall. Tunisia's most important raw materials are phosphates, petroleum, and natural gas. While the known exploitable reserves of oil and gas are approaching depletion, and the phosphate deposits are of relatively low quality, there have recently been promising indications of new hydrocarbon reserves, although it is too early to assess their exact potential. The country also has considerable tourism potential, and efforts have been made during the last decade to develop it rapidly.

4. Since independence in 1956, Tunisia has undertaken a massive effort towards development of its human resources, paying special attention to family welfare, education, and technical and vocational training. As a result, the infant mortality rate declined from 150 in the early 1960s to 90 at the end of the 1970s, the adult literacy rate increased from under 15 percent to about 62 percent, and average caloric supply per capita increased from about 80 to 115 percent of minimum standard requirements. An active family planning policy pursued by the Government led to a decrease in fertility and birth rates.

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/1 Part I is substantially the same as Part I of President's Report No. P-3573-TUN of May 10, 1983, for a Foundry Modernization and Expansion Project.

However, since at the same time mortality rates also decreased, the annual natural demographic growth rate decreased only slightly from 2.6 percent in the 1960s to 2.4 percent in the 1970s. Moreover, after 1976, the net emigration of Tunisians abroad was sharply reduced by restrictive measures taken in the EEC countries and Libya.

5. Agriculture still occupies nearly one out of every three Tunisians in the labor force. To accelerate job creation, more than half of the total investments of the Fifth Plan (1976-81) was allocated to directly productive sectors, but the direct employment effects of the leading sectors (petroleum, phosphate mining and processing, and tourism) are small. These sectors, however, make a vital contribution to GDP, public savings, and exports. They provided 53 percent of the country's foreign exchange earnings in 1982 while manufacturing activities, except phosphate-based chemicals, provided 19 percent.

6. Recent Economic Developments. During the Fifth Plan the growth performance differed from the impressive growth achieved from 1971 to 1976, not so much in terms of overall growth as in terms of the underlying growth factors: output in agriculture and in food industries has grown on average below the demographic rate since 1976, partially as a result of bad weather conditions; textile production and tourism development grew at a slower pace than projected mainly because of difficulties in European markets. By contrast, manufacturing industry other than textiles, as well as energy, phosphate processing, construction, and construction materials expanded at a fast pace.

7. In spite of the considerable increase in domestic demand, particularly in investments, the balance of payments situation remained favorable from 1976 to 1981. Imports in current prices grew at a slower pace than exports, and the terms of trade improved significantly due to sharply higher post-1974 export prices for crude oil. As a result, the resource gap remained relatively small, and domestic savings financed on average over 76 percent of investment, which increased from an average of 23 percent of GDP for 1972-76 to 30 percent for 1977-81. The current account deficit averaged \$450 million per year (1977-81), and was easily financed; grant aid and private investments (mainly for oil exploration) provided about 30 percent, while the remainder was mainly covered by long-term foreign borrowing. Thus, during the 1970s total foreign debt increased little relative to GDP, and the debt service ratio dropped.

8. The public sector has played a major role in mobilizing and redistributing domestic resources. Central Government revenues were equivalent to about one-third of GDP on average for the Fifth Plan period, one of the highest shares among middle-income countries. Over 30 percent of these revenues was saved, and public savings financed close to two-thirds of total Government capital expenditures. This comfortable public finance situation permitted a rapid increase in payments to private consumers and public enterprises. Such transfers, including those for social security, accounted for 19 percent of total current budget outlays and over 7 percent of GDP in 1981.

9. The main objectives of the Fifth Development Plan were achieved, except for the employment target, and open and hidden unemployment remains a serious problem for the Tunisian economy at present. The actual GDP growth fell short by 1.2 percentage points of the planned rate of 7.3 percent p.a., mainly because of poor performance in agriculture, while the investment objective of \$9.8 billion in current prices, or 30 percent of GDP, was fully

met. Completion of some large projects in the public sector (steel, expansion of the oil refinery) was, however, delayed, but private sector investments, both foreign and national, exceeded Plan targets. Although job creation objectives were achieved in all non-agricultural sectors except construction, these sectors could only absorb 90 percent of new job seekers at a time when migration to Libya and Europe slowed down. The overall unemployment rate, estimated at about 12 percent of the labor force in 1980, has therefore not declined.

10. In 1982, the current economic situation suffered a series of setbacks, and GDP increased by only 1.5 percent in constant prices. Three factors accounted for this poor performance: adverse weather conditions which depressed agricultural output and consequently, agro-industrial output; recession in Europe which reduced exports, particularly chemicals and tourism; and exceptional technical problems in key intermediate industries. The slowdown in output, coupled with a large increase in minimum wages and some price liberalization led to an unusually high inflation (13.7 percent) in 1982. On the balance of payments side, despite the fall in petroleum prices, the current account deficit did not exceed the level foreseen for 1982 in the Sixth Plan, because the volume of petroleum exports was higher than expected. However, this deficit still reflects a substantial deterioration compared to earlier years. It was covered, in equal parts, by a substantial inflow of direct foreign investment and by medium and long-term credits at relatively favorable terms.

11. Medium-term Prospects. The Sixth Development Plan (1982-86) was approved by the Parliament in July 1982. The main objectives are employment generation, export promotion, and more rapid growth in the three least developed regions of the country (North-West, Center-West, and South). Sectoral priority is to be given to agriculture, engineering industries, and tourism.

12. The outlook for investment and growth during this period and beyond will partly depend upon future developments in the oil and natural gas sector. Oil and gas exploration programs under way have been encouraging. Based on known reserves, and with the possible exploitation of smaller fields that recently became profitable, it is generally expected that domestic oil and gas production would at best be stabilized at about its present annual level of 5-6 million tons of oil equivalent until the end of the decade. Barring large new oil or gas discoveries, and given the rapid rise in domestic demand for energy, Tunisia will have to face the consequences of a decline in energy revenues. The Government considers that the situation requires immediate policy changes and has introduced the most urgent ones in the Sixth Plan. By introducing these changes on time, Tunisia expects to reduce the associated economic and social strains, and avoid major balance-of-payments problems.

13. The Sixth Plan recommends a GDP growth objective in the range of 5.9 to 6.1 percent depending on agricultural performance. This growth rate will be difficult to achieve in view of the poor 1982 performance. Projected growth of traditional exports (tourism, textiles, and phosphate-based chemicals) is insufficient to compensate for the projected decline in oil export revenues; these exports should be supplemented by new ones, in particular engineering products. Production diversification and export promotion will, however, take time to bear fruit. The Plan strategy therefore rightly aims at containing domestic demand in order to control import growth. The macroeconomic scenario



assumes no improvement in terms of trade, as was brought about by oil price rises in 1973-74 and in 1979-80. This would not only affect the external account but also result in slower growth of domestic savings, particularly public savings.

14. Consequently, the Sixth Plan projects a drop in the fixed investment rate from 30 percent of GDP in 1977-81 to about 25 percent for the Plan period. This would still imply an increase of 24 percent in constant prices relative to the Fifth Plan investment. A major objective is to correct recent capital intensive biases in projects by appropriate sectoral allocation of investments. More resources would be allocated to small and medium manufacturing enterprises in the underdeveloped regions, in order to ease the unemployment problem and reduce income disparities between rural and urban areas. Since June 1981, a new set of policy measures has targeted the incentive system toward this objective. The Investment Code was modified to offer free industrial zones and direct subsidies to job creation for new projects in underdeveloped regions, and a Promotion Fund for Handicrafts and Household Workshops was created. In order to promote a more efficient technical and financial management of the public and private modern sectors, the Plan assigns a major role in project promotion and supervision to an expanded network of new development banks (two opened in 1981 and three in 1982); they are joint ventures with foreign investors and should alleviate the pressure on the budget to finance too large a share of public investments.

15. Increasing budgetary constraints will require a reassessment of the present policies of subsidies for energy, basic foodstuffs, transportation, and public sector enterprises. In addition, interest rate policy and a better-adjusted fiscal system should be used to restrain final consumption and stimulate savings. As first encouraging steps in 1981 and in early 1982, sizeable price increases in energy and agricultural products were implemented, and the whole interest rate structure was revised upward, rates on saving accounts and term deposits and industrial lending rates being increased by 1.5 to 2 points. There was a sizeable increase of the legal minimum wage (30 percent) in March 1982, mainly to improve the low-wage earners' living conditions, but the Government recognizes that overall wage and salary policies should keep labor cost increases (including social costs chargeable to enterprises) in line with productivity increases, particularly since Tunisia wants to stimulate tourism, and improve its international competitiveness for exports of manufactured goods.

16. Social Issues. Tunisia's social performance has been impressive since independence, and the country has come a long way towards meeting the basic needs of its population and reducing absolute poverty. About 16 percent of GDP is now devoted to social programs. However, unemployment among the young and regional pockets of poverty still present serious social problems.

17. Recently published data show that the continued attention of the Government to poverty oriented social programs resulted in a reduction of the ratio of people under a minimum standard income from 17 percent of the total population in 1975 to 13 percent in 1980. During this period, the overall number of this group declined in urban areas but remained the same in some rural zones in the center of the country, as a consequence of poor agricultural performance. Income differentials between the coast (East) and the interior (West) widened, in part because the system of price controls and subsidies as well as budgetary expenditures had a weak redistributive impact. The Government

is using the forthcoming Plan to focus on the zones of poverty, with a view to eradicating them before the end of this century. Reducing the demographic growth rate is considered an important factor in this endeavor.

18. Education expenditures rank first among budgetary outlays. The comprehensive education system provides free access to all students, and the gross enrollment rate has reached 100 percent for primary education, and 30 percent for secondary education. The performance of the system could, however, be improved by expanding vocational training programs, improving their relevance and responsiveness to labor demand, and to the special needs of the poor and rural groups.

19. Public health services are second among social expenditures, and their overall beneficial effect is reflected in the improvement of the vital statistics (para. 4). There remain, however, regional disparities in the availability of hospital beds, doctors and nursing personnel; health services have concentrated largely on curative medicine, and the medical referral system is not functioning properly. As a result, the rural poor are often excluded. Closely linked to nutritional deficiencies, infant mortality remains high relative to middle-income countries.

20. In the Sixth Plan, investment in education, health, housing and water supply is focussed more on deprived areas, provided at lower costs (health, shelter), and made more relevant to the needs of the economy (training). In education, two reforms are under discussion: the first one would provide a nine-year schooling period for all children, and the second would create polytechnical high schools combining basic and technical education. In health, the Sixth Plan allocates more resources to preventive medicine and nutrition education. Finally, as regards housing, public subsidized programs will be directed to the neediest population groups. The housing demand from households above the minimum standard income limit will be satisfied by the private sector.

21. External Assistance and Foreign Debt. During the second half of the 1970s, the growth of foreign borrowing was modest and a growing share of foreign funds was provided by public sources at relatively soft terms. Foreign loan commitments averaged about \$700 million per annum, 62 percent of which in the form of official assistance (ODA). About 65 percent of ODA commitments came from bilateral sources, chiefly France, the Federal Republic of Germany, Canada, and some oil-surplus countries. About 24 percent of total ODA was committed by the Bank Group, and some 11 percent by other multilateral sources. Borrowing terms were favorable, averaging 5.8 percent interest and 18.5 years maturity, including a grace period of 5 years. At the end of 1982, debt outstanding and disbursed was estimated at about \$3.5 billion, or 44 percent of GNP; because exports declined substantially, debt service was 16 percent of exports of goods and services, as compared with 13 percent in 1981.

22. The current account deficit reached \$690 million in 1982, and is projected to grow to about \$1.0 billion in 1986. New loan commitments from abroad, projected at \$1.2 billion per year on average (at present dollar exchange rates), should not be difficult to obtain, with ODA providing half of the total. The external debt-service ratio is not expected to increase above its present level until 1986.

23. These relatively favorable prospects would depend on a timely implementation of policy changes to curb domestic demand, promote exports, and

improve public sector savings. It should be noted, however, that the Sixth Plan recommends a low growth scenario in order to preserve the country's relatively high financial stability and creditworthiness. This objective is even more crucial if the country is to succeed in mobilizing the large inflows of direct foreign capital assumed in the Plan. Foreign investments were small during most of the 1970s but have gained momentum during the last three years in line with increased activities in the oil sector, and new incentives offered to foreign investors in manufacturing. Such investments have increased from \$100 million in 1976 to about \$350 million in 1981, and have been equivalent to 10 percent of total investments for 1977-81. The Plan's growth scenario estimates that about 15 percent of total investment could be financed by direct foreign investment, equivalent to an annual inflow of \$400 million. The newly created development banks (para. 14) are expected to play a significant role in this context.

24. In conclusion, the balance-of-payments outlook in the medium term will depend on developments in the hydrocarbon sector and on the policy changes to be initiated during the next few years. In the 1983 Budget Law, the Government reiterates its determination to implement all needed policy measures to preserve macroeconomic equilibrium. Considering its long record of prudent and skillful balance-of-payments and external debt management, there are good grounds to assume that it will formulate and implement the necessary policy changes and will continue to be creditworthy for future Bank lending. The Bank's close dialogue with the Government on several policy aspects at the macro and micro levels will be pursued in connection with the implementation of the Sixth Development Plan.

#### PART II - BANK GROUP OPERATIONS IN TUNISIA /1

25. Since 1962, the Bank has committed to Tunisia fifty-seven loans and eleven IDA credits amounting respectively to \$1,200.6 million and \$70.0 million (net of cancellations) of which thirty-two loans and credits have been fully disbursed. Annex II contains a summary statement of Bank loans, IDA credits and IFC investments as of March 31, 1983, and notes on the execution of ongoing projects. Project implementation is generally satisfactory. As of March 31, 1983, overall disbursements amounted to 53 percent of appraisal estimates, which compares favorably with other countries in the region. Disbursement performance for irrigation, industrial finance and port projects has generally been above the country average, while larger than average disbursement delays have been experienced for agricultural credit, education, highway, urban and fisheries projects, due to project specific problems that are being addressed through supervision missions and sector discussions. In a number of sectors, important institutional improvements have been achieved, and autonomous agencies have been created or strengthened to ensure the efficient management of the related sectors or subsectors.

26. The Bank's lending strategy in Tunisia aims at supporting Government efforts to: (a) increase employment; (b) encourage more balanced growth and distribution of income among regions and income groups with particular emphasis on rural areas, and on operations targeted to low-income population groups; (c) promote export-oriented policies, technological changes and improvements in

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/1 Part II is substantially the same as Part II of President's Report No. P-3573-TUN of May 10, 1983, for a Foundry Modernization and Expansion Project.

labor productivity; and (d) provide selective support for the development of basic infrastructure and for institution building in key public services. An important feature of this strategy is to support the Tunisian authorities in the timely and well-coordinated preparation of projects through missions and advice by Bank staff, the assistance of the IBRD/FAO Cooperative Program, the use of the Bank's Project Preparation Facility, and a Technical Assistance project (para. 27). The Bank is also supporting the Government in its efforts to increase the mobilization of domestic resources, and to secure cofinancing for the projects it assists. The latter is particularly important in view of the extent of Tunisia's external resource needs.

27. Within this broad framework, past lending emphasized support for long-term investments in infrastructure and social development. Lending for urban and social development, including water supply, sewerage, education, health, urban development, and the Tunis planning and public transport project has accounted for 32 percent of Bank/IDA commitments in Tunisia since 1971. Lending for transport, power and tourism infrastructure has accounted for 28 percent. Agriculture and fisheries have received 23 percent, and industrial and hotel financing, mostly through the Economic Development Bank of Tunisia (BDET), 17 percent of total commitments. In addition, in September 1982, the Bank made a first loan for technical assistance aimed at improving the Government's capability for project identification and preparation.

28. In line with its lending strategy, the Bank will pursue its efforts in key sectors of the economy that offer prospects for economic and social development. It will also assist projects which address the needs of the least developed regions of the country, develop research capabilities, increase productivity, and help reduce the gap between income groups, and between urban and rural areas. Particular attention will be paid to employment creation, institution building, and agricultural development. In addition to the proposed mining technical assistance project, proposed future lending would include projects for agricultural research and extension, regional development, rural health, water supply and electrification, export industry, energy, and urban development.

29. The Bank's economic and sector work will continue to focus on strengthening the macroeconomic and sector base for our lending program. It will be centered on the analysis of economic issues and policies related to the necessary adaptation process from a petroleum exporting to a petroleum importing country. This analysis, which was included in the special economic report entitled "Tunisia - Review of the Sixth Development Plan (1982-86)" (No. 4137-TUN), dated March 16, 1983, will be pursued by an updating economic mission tentatively scheduled for early 1984. Further economic and sector work will include a review of industrial employment creation issues, a study of the financial system, and reviews of the education and management training, transport, energy and construction materials sectors.

30. The Bank and IDA accounted for about 28 percent of total public commitments to Tunisia during 1979-1981. Their share in total debt outstanding and disbursed at the end of 1981 (including loans from private sources) was 12 percent and their share in debt service during 1981 was 9 percent. The share of the Bank and IDA in Tunisia's disbursed external debt is expected to remain at about 10 percent and their share in the debt service to increase to about 13 percent through 1986.

31. IFC has invested in NPK Engrais (a fertilizer plant), in BDET, in Compagnie Financière et Touristique (COFIT, a company to promote and invest in tourism projects), in Société Touristique et Hotelière RYM (a large hotel development), in Industries Chimiques du Fluor, which produces aluminum fluoride from local fluorspar for export, and in the Sousse-Nord integrated tourism development project. IFC's net commitments in Tunisia totalled \$9.9 million, as of March 31, 1983. Currently, IFC is considering a fertilizer project which would produce phosphoric acid for export.

### PART III - THE MINING SECTOR

32. The Mining Sector. In 1981, Tunisia's mining sector (excluding hydrocarbons) accounted for 1.6 percent of the country's GDP, employed 1 percent of the labor force and contributed 2.2 percent of commodity exports. However, in several depressed regions of Tunisia, the sector is important as a provider of employment and, directly and indirectly (through export-oriented processing industries), it takes the second place (after oil) in the country's commodity export trade (10 percent of exports).

33. Phosphates are the most important mineral resource of Tunisia. They have been extracted since the turn of the century in the Gafsa/Metlaoui area of Southern Tunisia. Reserves, of a low grade, are estimated at 1.6 billion tons. Production of 28-percent  $P_2O_5$ -grade phosphate rock amounted to 7.4 million tons (or 4.7 million of beneficiated marketable rock) in 1982 of which about three quarters were processed locally to phosphoric acid or fertilizers for export. Additional promising phosphate reserves in Northern Tunisia estimated at 1 billion tons of 13-percent  $P_2O_5$ -grade are under investigation for future development, near Sra Ouertane in the area of Le Kef.

34. The Tunisian phosphate processing industry is among the largest and most efficient of its kind in the world. It started in the mid-1960s in the coastal towns of Gabes and Sfax, in response to the trend in international trade towards processed phosphates rather than low-value phosphate rock. The industry grew rapidly in the 1970s selling \$335 million worth of products by 1981. Further expansion is planned during the 1980s. This will lead to an increase in its requirements of beneficiated phosphate rock from 3.3 million tons in 1982 to 6.2 million tons in 1990. In view of the technical complexity of the industry and proposed project component, a Technical Background paper is attached (Attachment I, Part I).

35. Other exploited minerals, albeit of minor importance, are lead, zinc, fluorspar, baryte and iron ore. Among the minerals which are not yet exploited, potash and other salts show the most promising prospects. Potash occurs, dissolved as brines, in three salt lakes in Southern and South-Eastern Tunisia, the largest of which is the Chott El Jerid, with estimated reserves (expressed in terms of potassium sulphate) of 50 million tons. The El Melah lake near Zarzis in the South-East contains an estimated 9 million tons of reserves and El Adibate, also in the South-East, about 4 to 6 million tons.

36. Although the brines in these lakes contain a mixture of potassium and other salts, potash is most likely to be produced in the form of potassium sulphate (SOP). About 96 percent of all potash produced in the world is used as fertilizer. Most of the potash (about 85 percent) is produced as potassium chloride (KCl); only about 5 percent is in the form of SOP. Because of particular agronomic advantages (certain plants are more responsive in yields

and quality to SOP than to KCl; chlorine-based fertilizers are undesirable in saline soils), SOP commands a premium price in international fertilizer trade over other potassium salts, averaging twice the price of KCl (in terms of plant nutrient content) over the past five years. World demand for SOP is expected to outstrip supply by the early 1990s, which would tend to lead to a further strengthening of prices. Despite a growing internal Tunisian demand for potassium fertilizer, any production would be heavily export-oriented because the minimum size of economic production would far exceed domestic requirements. Advantages for Tunisia in the production of SOP over competitors would be the relatively favorable location vis-a-vis main consumption areas in Europe (France and Greece) and North Africa (Morocco and Algeria), as well as the possibility of processing brines rather than mined rock and, as a result of the composition of the brines, of producing SOP directly from the brines without the expensive processing of potassium chloride with the use of sulphuric acid. The Technical Background paper attached provides details on the potash industry and proposed project component (Attachment I, Part II).

37. Institutional Framework. The Ministry of National Economy, through its Department of Mines and Geology (DMG), oversees the mining sector. State-owned operating companies such as the Gafsa Phosphate Company (CPG), carry out exploration in the vicinity of their operating mines. In other areas, the National Mining Office (ONM), which has autonomous status outside the Government structure, undertakes exploration. After promising deposits are identified, corporations are usually created to continue the preparatory work up to the investment stage. Such a pre-investment company is working on the phosphate deposits of Sra Ouertane (para. 33), and another (the Development Company of the Chemical Industries of the South - SDICS) is working on the potash deposits near Zarzis (para. 35).

38. Bank Role in Mining. The Bank has extended a \$23.3 million loan to CPG (Ln. 1042-TUN of October 1, 1974) to finance development of the Sehib underground mine and beneficiation facilities. The project was expected to produce two million tons per year of phosphate rock at low cost using four "long-wall" production units, a new mining technology for Tunisia. A new washing plant was to beneficiate the rock so produced. Instead, mine output reached about 300,000 tons from one trial long-wall system in 1982, and the washing plant has to be fed supplemental rock from another mine in the vicinity and is only operating at 50 percent capacity. Project objectives were not met mainly because of organization and management weaknesses which prevented CPG from mastering the difficulties associated with the introduction of the long-wall technology. While the trials have demonstrated that this technology is technically feasible for Tunisian rock, they also demonstrated that effective logistic support in the form of appropriate maintenance, cost and spare part control systems is an essential precondition for such a method to be successful in the long term. No plans exist at present to equip the Sehib mine with further long-wall machines. However, effective organizational and logistic systems are equally important for improving the efficiency of CPG's existing operations and preparing the way for expanding production through low cost open pit mining. The phosphate component of the proposed project includes technical assistance for introducing such systems.

#### PART IV - THE PROJECT

39. Background. The proposed project was identified during the course of Bank supervision of the Gafsa Phosphate project (para. 38) and discussions on

the Government's draft Sixth Development Plan (1982-86) during the first half of 1982, and was prepared by the Government, CPG, ONM and SDICS. The phosphate and mining policy components of the project were appraised in December 1982 and the potash component in February 1983. Negotiations were held in Washington from July 8 to 15, 1983. The Tunisian delegation was led by Mr. Mohsen Zerelli, Director of Mines and Geology of the Ministry of National Economy and included the President and Director General of CPG, Mr. Mohamed El Fadhel Khalil, a representative of the Ministry of Planning, senior staff of CPG, the President and Director General of SDICS and a representative of ONM. The main features of the project are summarized in the Loan and Project Summary and in Annex III. Maps showing the project locations are attached.

40. Project Objective. The objective of the project is to assist the Government in developing its mining potential by (i) improving the efficiency of the largest mining company in the country; (ii) studying the feasibility of exploiting new phosphate and potash deposits; and (iii) improving the institutional framework for the formulation of mining exploration policy.

41. The project would provide technical assistance, in the form of consultants' services and related equipment, for three components: phosphate, potash, and mining policy.

42. Phosphate. The phosphate component (described in detail in Attachment I, para. 19-24, and in Attachment II, p.1) would help reestablish CPG as a financially viable company by improving existing operations. It would, by evaluating the company's most promising investment projects, lay the ground for efficient output expansion in the 1980s with a view to supporting the continuous growth of Tunisia's dynamic phosphate processing industry. It would consist of the following actions and studies, including training of CPG staff:

a) Financial organization and management, cost control and monitoring. CPG's financial organization and management system would be analyzed with a view to increasing its effectiveness and a comprehensive cost control and monitoring system would be established.

b) Underground mine improvements. The operation of CPG's underground mines would be reviewed in order to define attainable capacities and identify inefficiencies.

c) Reorganization of spare parts management. The existing services would be reviewed and a computerized inventory management system for mining equipment spare parts introduced.

d) Reorganization of personnel administration. The existing system would be reviewed, and a computerized payroll system implemented.

e) Maintenance improvements. Central workshop personnel would be trained in the repair and maintenance of specialized mine equipment, and instrumentation personnel would be trained in the maintenance of process control equipment.

f) Rehabilitation of beneficiation plants and material handling. A feasibility study would be carried out with subsequent engineering and supervision for rehabilitating the washing plants at Metlaoui and M'Dilla, currently operating below capacity, as well as for improving CPG's material handling facilities at M'Dilla.

g) Operations improvement and expansion of Kef Eschfair. This open pit mine accounts for one third of CPG's mine capacity. A study would analyze the reasons for the present underutilization of capacity and develop and implement procedures for maintenance, cost control and training. A feasibility study and preliminary engineering on expanding the mine capacity from 2.5 million tons per year (tpy) to 3.6 million tpy would also be carried out.

h) Feasibility studies on new mines. Feasibility studies on new open pit mines would be carried out as follows: (i) at Djellabia (90 million tons deposit), a detailed feasibility study, based on preliminary work conducted with the assistance of the US company of Morrison-Knudsen since 1980, would investigate dragline mining and beneficiation by flotation; (ii) at Oum El Kheheb (45 million tons deposit) and Sehib South (20 million tons deposit), optimal mine output and feasibility would be studied. Production rates of 1.1 to 2.2 million tpy of washable ore from each deposit and 1.3 million tpy of floatable ore from Sehib South are being considered.

43. Potash. The potash component (described in detail in Attachment I, paras. 40-44, and Attachment II, p. 2) would help the Government evaluate the potential of three deposits at Chott El Jerid, Zarzis and El Adibate (paras. 35 and 36), with a view to permitting an investment decision on a possible potash production project. It is expected that this project would be oriented towards export markets. Actions to be taken would consist of (i) analyzing existing data on brines, geology and pumping tests to provide reliable estimates of the size and composition of the reserves; (ii) conducting laboratory and pilot plant tests on the brines to identify the optimal processing method; (iii) if warranted by a review of the actions under (i) and (ii), preparing a detailed feasibility study and engineering for a full-scale project; and (iv) investigating the market for potassium chloride and sulphate as well as by-products.

44. The potash component would be implemented in two phases, with the second phase carried out if the first phase has confirmed a potentially economic potash fertilizer project. During Phase I, the potential of each of the three deposits would be analyzed, including the possibility of integrating the Zarzis and El Adibate operations in view of their proximity and the relatively small size of the El Adibate deposit. Phase I would be concluded with a comparative techno-economic evaluation of potash production at the three sites considering, as possibilities, a full-scale project at Zarzis alone, Zarzis and El Adibate together, or Chott El Jerid alone to determine the optimal project location and configuration. Phase II would include the detailed feasibility study and basic engineering of the potash development project selected under Phase I, covering all technical, economic and financial aspects. During Phase I, a market study would identify the most likely markets for Tunisian potash products and forecast future price behavior in these markets. During Phase II, detailed market, marketing and distribution analysis for potash products would be undertaken.

45. Mining Policy. The Department of Mines and Geology (DMG) oversees mining sector development and the National Mining Office (ONM) is responsible for exploration, including mapping and geophysical and geochemical work for all minerals other than phosphates and salts. The sector suffers from the lack of a clearly-defined exploration policy and strategy. The mining policy component of the project would analyze and define (i) guidelines for data collection, analysis and evaluation; (ii) criteria for exploration policies and investment priorities; and (iii) staffing and training requirements, organizational



requirements and budgetary implications of any recommended measures. The results of this study would enhance the ability of DMG and ONM to evaluate mining prospects and to plan and implement a rational mining exploration policy.

46. Implementing Agencies and Project Implementation. The implementation of the project would require the involvement of several companies and Government agencies (Attachment II; Loan Agreement, Section 3.01 (a); and Project Agreement, Section 2.01). The implementing agencies would be assisted by consultants. All consultants to be financed under the proposed Bank loan (this excludes the consultants for the Zarzis study who are financed by non-Bank sources) would be selected in accordance with Bank Guidelines. Assurances to that effect were obtained at negotiations (Loan Agreement, Section 3.04 (c) and Project Agreement, Section 2.02 (b)). The phosphate component would be implemented by CPG, which was created about one hundred years ago to exploit the phosphate reserves of the Gafsa/Metlaoui area in Southern Tunisia (para. 33). Nearly all of its shares are now owned by Government or state-owned institutions. The company operates 7 underground and 2 open pit mines and 14 beneficiation plants. Financial statements and performance indicators of the company are summarized in Attachment I, Tables 1-3. During the 1975-82 period, mine production increased by 35 percent mainly due to the opening of two new open pit mines. Investment for replacement, rehabilitation and expansion during this period totalled the equivalent of \$600 million. This is about double the investment per ton of output required by its foreign competitors reflecting both the relatively low quality of the rock and inefficiencies in operation. While unit costs of production in constant dollars have not increased, a 40 percent increase has been observed since 1975 in constant Dinar terms, and present unit costs are about 20 to 40 percent above that of the company's major competitors. As a result, the company has suffered severe financial losses since 1977, which were covered from reserves and Government equity contributions. In addition to the low quality of the rock and the heavy depreciation and financial charges of previous investments, the major reasons for CPG's high production costs are (i) reliance on underground mining (about 50 percent of output); (ii) low productivity and capacity utilization rates, primarily due to ineffective introduction of underground and open pit mechanization (para. 38) and inadequate maintenance and operating procedures; and (iii) employment of surplus labor for social reasons (the company has a labor force of about 14,000 and is the only major industrial employer in a particularly depressed region of the country).

47. To help CPG regain its financial viability an understanding was reached with the company during negotiations on a corporate plan aiming at the company's operational and financial restructuring. The corporate plan contains year-by-year operational and financial targets which would reestablish the company's viability fully by 1987. The company's performance in the light of these indicators and targets would be closely monitored by the company and the Bank (para. 58). These targets include (i) reducing unit production cost by 9 percent in real terms as compared to 1982; (ii) increasing underground mine productivity by 10 percent; (iii) reaching full capacity utilization at Kef Eschfair, the company's largest open pit mine; (iv) increasing phosphate recovery in the washing plants by 4 percent; and (v) reducing consumable stocks by 30 percent, by eliminating obsolete and non-standardized stocks. Additional measures include an agreement by the company to renegotiate its contracts with the railways and electricity companies and the local phosphate processing companies with a view to obtaining more favorable transport and power rates and higher phosphate prices, as well as to retire gradually its excessive labor force. The technical assistance operations included in the project are an

integral part of the company's corporate plan. In particular, training of equipment operators and maintenance personnel is expected to increase productivity and improve equipment utilization rates in both mines and plants. Further, reorganization of production tasks to remove bottlenecks and improved cost control and monitoring of operations is expected to increase efficiency. In addition, the gradual shift to open pit mining is expected to reduce production cost in the long term.

48. To improve the financial structure of the company, its major shareholders and creditors, the Government and the Central Bank, have earlier this year converted into equity \$13 million equivalent of long-term debt owed to the Government and another \$13 million equivalent of short-term debt owed to the Central Bank. They further agreed to inject into the company \$30 million equivalent as new equity and convert \$16.5 million equivalent of short-term debt into equity by December 31, 1983. In addition, the Social Security Fund agreed to convert to long-term debt about \$31 million equivalent of overdue contributions by the company to the Fund. These measures constitute a substantial effort by the company, its shareholders and creditors to reestablish the company's financial equilibrium. Together with the operational improvements mentioned above, they would allow the company to achieve a current ratio of 1.2 by December 31, 1986 and a debt/equity ratio of 60:40 by December 31, 1987. Assurances that the company would achieve these ratios by these dates were obtained during negotiations (Project Agreement, Sections 4.04 and 4.05). In addition, the corporate plan agreed with the company sets targets for these ratios in the intervening years and further specifies that in future investments the company will seek financing terms which do not exceed a debt equity ratio of 60:40 for new projects and 50:50 for replacement and renewal investments. The company also provided assurances that it would obtain Bank approval for investments exceeding in aggregate \$20 million in any one year during the implementation of the project (Project Agreement, Section 4.03 (b)). The existing Loan Agreement with CPG (Ln. 1042-TUN of October 1, 1974) would be amended to reflect the above modifications in the financial and investment limitation covenants (Project Agreement, Section 6.01).

49. CPG has agreed with the Bank on the terms of reference for the studies under the phosphate component and on the timetable for their execution. It has started the process of selecting consultants. The implementation of the first study (on Djellabia, para. 42 (h)(i)) is expected to commence in the second half of 1983 and to be completed by early 1984. The remainder of the studies are expected to commence by the beginning of 1984 and to be completed by the second half of 1986. CPG has already established a project unit and appointed a project coordinator/administrator who is supported by eight department and section managers and three engineers, all with qualifications and experience satisfactory to the Bank. The project unit staff would be responsible for coordinating site activities, contracting and supervising consultants, and cost monitoring. Assurances were obtained from CPG during negotiations that it will maintain a project unit to carry out the phosphate component of the project, with staffing, powers, functions, facilities and a work program satisfactory to the Bank (Project Agreement, Section 2.03).

50. The potash component would be implemented under the overall responsibility of the DMG. A project unit has been created in DMG for this purpose which would coordinate the actions and studies to be carried out under Phase I of this component and prepare recommendations for the Phase II work. The project unit would also be in charge of a marketing study to be carried out

under the project. Assurances were obtained from the Government during negotiations that it will maintain this unit during project execution and provide it with staff (including a full-time project manager, a geologist and an economist) and equipment satisfactory to the Bank (Loan Agreement, Section 3.03 (a)). The project unit would be assisted in its tasks through technical advisory services from an engineering consultancy company experienced in the exploitation of potash-rich brines (Loan Agreement, Section 3.04 (b)(i)). This company would assist DMG in consolidating and comparing the results of the Phase I work on the different deposits and determine the optimal potash project scope and location, based on the findings of the studies of the various deposits and the preliminary market study. Assurances were obtained from the Government at negotiations that it will furnish to the Bank for its approval, on the basis of a review of the actions under Phase I of the potash component, a plan for the execution of the detailed feasibility study and basic engineering under Phase II, and carry out such plan according to a timetable satisfactory to the Bank (Loan Agreement, Section 3.07 (a)). Agreement between the Government and the Bank on such plan would be a condition of disbursement under the loan against expenditures for Phase II (Loan Agreement, Schedule I, para. 4 (b)(i)).

51. Direct responsibility for the implementation of the Zarzis component would lie with SDICS, for the El Adibate component with ONM, and for the Chott El Jerid component with CPG, which has explored the potash potential of this deposit for ONM since 1977 using its laboratory facilities nearby. All these organizations have operating project units for this purpose. Assurances were obtained from the Government during negotiations that it will maintain the units at SDICS and ONM, and from CPG that it will maintain the unit at CPG during project execution and provide them with staff and equipment satisfactory to the Bank (Loan Agreement, Section 3.03 (b) and Project Agreement, Section 2.03).

52. SDICS has already retained the services of the consortium Mines de Potasse d'Alsace/Spie Batignolles for the work on the Zarzis deposits. The terms of reference for the works at El Adibate and Chott El Jerid and the timetable for their execution have been agreed upon with the Bank. ONM and CPG would be assisted in the execution of these works by consultants experienced in hydrogeology and potash brine processing. The procurement of geological survey and laboratory testing equipment to support the consultant work would commence in the second half of 1983, and the surveys and tests on El Adibate and Chott El Jerid as well as the preliminary market study in early 1984. The tests at Zarzis are already underway. The basic design on all three deposits will commence in early 1985 and be completed by the end of 1985. This would provide the basis for a comparative techno-economic evaluation of the three sites to permit work on the selected project location and configuration to be conducted in 1986.

53. The mining policy component would be implemented by DMG with the assistance of ONM. Terms of reference and a timetable of execution for the study were agreed with the Bank during negotiations. The study would be implemented in the first half of 1984. DMG would appoint a coordinator and ONM would appoint a project manager, both with experience and qualifications satisfactory to the Bank, to execute the study with the help of consultants, as conditions of disbursement of the category of the proposed loan allocated to this component (Loan Agreement, Section 3.03(c) and (d) and Schedule I, para. 4 (b)(ii)).

Project Costs and Financing Plan

54. Total cost of the project, including about \$0.5 million of taxes and duties, is estimated at \$24.6 million, of which \$16.9 million in foreign exchange. Base cost estimates are at mid-1983 level. The project cost provides for adequate physical (about 12 percent) and price contingencies (4 percent for 6 months of 1983, 7.5 percent for 1984, 7 percent for 1985 and 6 percent for 1986 for foreign cost, and 5 percent for 6 months of 1983, 9 percent for 1984, 8 percent for 1985 and thereafter for local cost). The costs in man-months are summarized below. They include fees, subsistence and travel. Because of the highly technical nature of the works, local consultants are unlikely to play a major role.

	<u>Man-months</u>	<u>Foreign</u> <u>\$/Man-month</u>	<u>Local</u> <u>Man-months</u>	<u>/1</u> <u>\$/Man-month</u>
Phosphate	603	12,700	357	2,000
Potash	360	13,600	5,000 <u>/2</u>	700
Mining Policy	12	12,700	7	2,000

55. The proposed Bank loan of \$13.4 million would be made to the Government for a term of 17 years including 4 years of grace at the Bank's standard variable interest rate. The Government would onlend \$10.3 million of the Bank loan to CPG for those parts of the project that are to be implemented by CPG (phosphate and part of potash component), at the same terms as the Bank loan, except that the interest rate would be fixed at 10.5 percent per annum for the duration of the subsidiary loan (Loan Agreement, Section 3.02 (a)). The execution of the Subsidiary Loan Agreement between the Government and CPG would be a condition of effectiveness of the Bank loan (Loan Agreement, Section 6.01). The Government would make available to ONM on a grant basis the proceeds of the loan allocated to the potash component (Loan Agreement, Section 3.02 (b)). The Government would carry the interest rate risk on the loan, but would pass on the foreign exchange risk pertaining to the onlent portion of the Bank loan to CPG. The Bank loan would finance the estimated foreign exchange cost of the project and the front-end fee of \$33,416, except for part of the foreign exchange cost of the Djellabia feasibility study for which CPG has obtained a \$0.2 million grant from the US Trade and Development Program and to which the company will contribute an additional \$0.2 million from its own resources, and the foreign exchange cost for the Phase I study on Zarzis for which SDICS has obtained foreign financing arranged for by the French contractor amounting to \$3.1 million equivalent. To expedite project implementation, retroactive financing of up to \$1.3 million is proposed for urgent works for which the implementing agencies have or will have entered into commitments with consultants before the expected signature of the proposed loan, but after August 1, 1983 (Loan Agreement, Schedule 1, para. 4 (a)). The Bank would have the right to refinance the funds provided by it under the phosphate or potash components of the project should any of the feasibility studies financed under this project lead to a new Bank loan for a development project (Loan Agreement, Preamble (B)).

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/1 Counterpart staff in implementing agencies.

/2 The local staff for the potash component would be involved mainly in supporting, often unskilled, services.

### Procurement and Disbursements

56. The geological survey and laboratory testing equipment for the potash works at El Adibate and Chott El Jerid would be procured by ONM and CPG, respectively, under international competitive bidding, except for items costing less than \$100,000 up to an aggregate of \$850,000, which would be procured under limited international tendering (Loan Agreement, Schedule 4, C).

57. The proposed Bank loan would be disbursed over a period of four years against the full foreign expenditures of foreign consultants and imported equipment and 90 percent of local expenditures of local consultants and local expenditures for locally purchased equipment. The closing date of the loan would be December 31, 1987.

### Monitoring and Reporting

58. A detailed implementation schedule for each project activity has been agreed with the Government and CPG during negotiations. In addition, a system of key technical and financial indicators and targets was defined with CPG during negotiations which will help the company monitor its operations and agreed upon operational and financial yearly targets. Assurances were obtained from CPG during negotiations that it will maintain until project completion such a system of indicators and targets acceptable to the Bank, and submit to the Bank, starting January 1, 1984, quarterly progress reports in terms of such indicators and targets, and, starting September 30, 1984, production plans of the company for the following year (Project Agreement, Section 3.05). In addition, to follow closely its investment program, CPG will submit to the Bank by September 30 of each year, annually updated satisfactory five-year investment plans and financial projections (Project Agreement, Section 4.03 (a)). The implementing institutions would report to the Bank on the progress of the project through status reports in a summary fashion monthly and in detail quarterly, which would be forwarded to the Bank by DMG and CPG (Loan Agreement, Section 3.06 (b)(iii) and (iv) and Project Agreement, Section 2.05 (b)(iii) and (iv)). CPG would furnish to the Bank for its review the recommendations and conclusions of the phosphate studies within one month after their completion, and DMG of Phase II of the potash feasibility study and the mining exploration policy study within three months after their completion, and consult with the Bank on follow up actions (Loan Agreement, Section 3.07 (b) and Project Agreement, Section 2.06). Furthermore, CPG and DMG would, within six months after the closing date, prepare project completion reports on their respective components summarizing the results of the project (Loan Agreement, Section 3.06 (d) and Project Agreement Section 2.05 (d)).

### Accounts and Audit

59. Project accounts would be kept by DMG, ONM and SDICS. The accounts of CPG and the project account of SDICS would be audited by private independent auditors acceptable to the Bank. The project accounts of DMG and ONM would be audited by the General Financial Audit Service, an independent agency functionally attached to the Ministry of Finance, in accordance with criteria and procedures agreed upon with the Bank. Certified copies of accounts and the auditors' annual reports thereon, would be sent to the Bank within six months of the end of each fiscal year (Loan Agreement, Section 4.02 and Project Agreement, Section 4.02).

Benefits and Risks

60. The project would help the Government develop the country's mining potential by improving the efficiency of Tunisia's largest mining company and preparing for the expansion of its output, by studying the feasibility of the establishment of a potash industry and by improving the institutional framework for administering and setting mining exploration policy. It would thus contribute to the diversification of economic growth and exports.

61. Potential risks relate to the commitment of the phosphate company to the project in case of changes in management, and to the uncertainty of the potash feasibility studies leading to a viable investment project. While the possibility of changes in CPG's top management during project execution cannot be excluded, the Government is determined to address the company's long-standing deficiencies to reduce the drain on the Government budget and make full use of the economic potential of this important mineral resource. At the same time, both the Government and CPG recognize that company staff alone do not have the expertise to resolve the problems without outside assistance. The proposed project is expected to initiate the managerial and structural changes required to develop a competitive Tunisian phosphate mining industry. As regards the risk of the potash studies not leading to a viable investment project, this is considered limited given the promising results of preliminary work already done to produce directly potassium sulphate from Tunisian brines.

PART V - LEGAL INSTRUMENTS AND AUTHORITY

62. The draft Loan Agreement between the Republic of Tunisia and the Bank, the draft Project Agreement between Compagnie des Phosphates de Gafsa and the Bank and the Report of the Committee provided for in Article III, Section 4 (iii) of the Articles of Agreement are being distributed to the Executive Directors separately. Special features of the draft Loan and Project Agreements are referred to in the text, and listed in Section III of Annex III. The execution of a Subsidiary Loan Agreement between the Government of Tunisia and Compagnie des Phosphates de Gafsa would be a special condition of effectiveness of the proposed loan (draft Loan Agreement, Section 6.01). Conditions of disbursement would be (i) Bank approval of a plan for the execution, and the extent of execution, of a detailed feasibility study on a possible potash development project, for disbursements against consultants and equipment for such a study and (ii) the assignment by DMG of a senior staff member as coordinator and by ONM of a project manager, for disbursements against consultants for the mining policy study (draft Loan Agreement, Schedule 1, para 4 (b)). Through Article VI of the Project Agreement, the requirements of Sections 4.03(b), 4.04, 4.05 and 4.06 of the Project Agreement are made applicable to the Loan Agreement between the Bank and CPG for the Gafsa Phosphate Project.

63. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank.

PART VI - RECOMMENDATION

64. I recommend that the Executive Directors approve the proposed loan.

A. W. Clausen  
President

Attachments

August 15, 1983  
Washington, D. C.

TUNISIA

MINING TECHNICAL ASSISTANCE PROJECT

Technical Background

I. PHOSPHATE MINING AND PROCESSING - THE SECTOR AND PROJECT COMPONENT

A. The World Phosphate Industry

1. Phosphorus is one of the three main plant nutrients--nitrogen, phosphorus and potash--used extensively to increase agricultural production. About 90 percent of all phosphate rock produced is converted into phosphate fertilizers. The remaining 10 percent goes into other phosphate chemical products such as detergents, insecticides and animal feeds.

2. Phosphate Rock. In 1982, world phosphate rock production was about 125 million tons, with the USA (39 million tons), the USSR (27 million tons), and Morocco (18 million tons) accounting for about 67 percent of world production. About 80 million tons of world rock production were consumed by the producing countries, while 44 million tons, or 35 percent of total production, were traded internationally. It is estimated that in 1982, the two major exporters, Morocco (14.0 million tons) and the USA (9.9 million tons) together accounted for 55 percent of world phosphate rock exports. They were followed by the USSR, Jordan, Togo, Senegal and other small producers. In 1981 and 1982, the phosphate markets were negatively affected by the difficult economic conditions prevailing worldwide. Export demand for rock fell by about 12 percent in 1981 and 4 percent in 1982, and phosphate stocks reached record levels. However, given the agricultural requirements for phosphate fertilizers, total world demand for phosphates is expected to increase at 4 percent p.a. over the next decade. With economics increasingly favoring location of phosphate fertilizer production near the mines, world export trade of rock is expected to grow at a rate of about 2 percent p.a. or less, whereas intermediate and finished products would grow at 7 percent p.a.

3. Phosphoric Acid and Phosphate Fertilizer. About 70 percent of the world's phosphate fertilizers are produced in the form of concentrated fertilizers such as triple superphosphate (TSP) or diammonium phosphate (DAP). Phosphoric acid is the key intermediate product in the manufacture of these fertilizers. In 1982, the world's installed production capacity for phosphoric acid was 32 million nutrient tons (P<sub>2</sub>O<sub>5</sub> equivalent). Phosphoric acid production in that year was 20.5 million nutrient tons or about 64 percent of installed capacity. About 72 percent of this amount was consumed locally; about 15 percent was used to produce finished products such as TSP and DAP for export; and about 14 percent was exported directly as phosphoric acid--the USA (0.90 million tons), Morocco (0.65 million tons) and Tunisia (0.31 million tons) together accounted for 66 percent of the world phosphoric acid exports.



4. Finished phosphate fertilizers are used mainly in the industrialized countries which account for 83 percent of world consumption. World demand for phosphate fertilizers has been static for the last three years or so, reflecting the depressed state of world agriculture. As a result, there was a 3.5 million nutrient tons surplus supply in 1981/82 and phosphate fertilizer prices are currently very depressed (their lowest level in real terms over 20 years). However since depleted phosphates from the soil must be replaced, as the world economic situation recovers the growth of world phosphate fertilizer demand is expected to resume, albeit at a lower rate (para. 2) than the 6.2 percent p.a. average over the last 20 years. There will be relatively little growth in industrialized countries where phosphate utilization levels are already high, but high growth rates are likely in South America, Asia and Eastern Europe. Planned increases in capacity are sufficient to satisfy demand only until 1987, and in this strengthened market prices are likely to increase in real terms.

World Phosphate Fertilizers Supply/Demand Balance  
(in million nutrient tons)

	<u>1981/82</u> a/	<u>1982/83</u>	<u>1984/85</u>	<u>1986/87</u>	<u>1988/89</u>	<u>1990/91</u>
Supply	35.03	36.76	39.30	41.10	41.10 b/	41.10 b/
Demand	31.56	33.46	36.98	39.68	43.52	47.74
Surplus (Deficit)	<u>3.47</u>	<u>3.30</u>	<u>2.32</u>	<u>1.42</u>	<u>(2.42)</u>	<u>(6.64)</u>

a/ Actual.

b/ On the basis of planned projects only.

5. In order to meet this growing demand, there will be a need to build the equivalent of 4-5 new large phosphate fertilizer plants each year. Most of these plants will be built in countries with phosphate rock reserves, with Morocco and the USA undoubtedly playing a leading role. Additional supplies will nevertheless be required from other sources.

6. Changing Phosphate Trade Patterns. During the past 20 years, the production share of different phosphate products has changed significantly. Improvements in production process technology and increasing freight costs caused the relative share of simple low-concentration products to decline, while the share of high concentration phosphoric acid-based products increased to account for about 70 percent of total phosphate supply in 1980 as compared with 11 percent in 1956. This trend is expected to continue and about 80 percent of the increase in phosphate consumption between 1980 and 1990 is likely to be derived from phosphoric acid.

7. Until a few years ago, phosphate fertilizer trade originated almost entirely from producers in industrialized countries which, with the exception of the USA, imported phosphate rock at relatively low prices and

processed it into phosphoric acid and finished fertilizers. It is now increasingly difficult for importers of rock to produce phosphoric acid that can compete with acid produced in vertically integrated operations near the mines. Accordingly, most new plants, particularly export-oriented facilities, are likely to be built near phosphate mines. As a result, demand in the export markets for phosphoric acid and processed fertilizers is expected to increase at a much higher rate over the next decade than that for rock exports. Industry sources forecast that by 1985 phosphate intermediates will comprise about 33 percent of the total phosphate trade as compared to 8 percent in 1967 and 25 percent in 1979.

#### B. The Phosphate Industry in Tunisia

8. Phosphate rock was first discovered in south-west Tunisia in 1886 (Map IBRD 17363) and mining started in 1896 following the creation of the Gafsa Phosphate Company (CPG). In the mid-1960's, because of the relatively low grade of its rock compared to internationally traded rock, Tunisia started converting it to intermediate phosphoric acid for export, in order to increase its intrinsic value. Tunisia's proximity to Europe, the largest processed phosphate market, gives it a freight advantage of US\$30 to \$40 per ton of product (47 percent P<sub>2</sub>O<sub>5</sub> for TSP and DAP; 54 percent P<sub>2</sub>O<sub>5</sub> for phosphoric acid), compared to the USA. This advantage, which more than offsets a disadvantage of US\$8 to \$15 per ton of rock (28 percent P<sub>2</sub>O<sub>5</sub>) in higher mining costs, allows Tunisia to be competitive in the Mediterranean Basin and the Middle East. In fact until 1982, Tunisia was second only to the USA in phosphate exports, holding about 10 percent of the international trade. Realizing its advantages, Tunisia has built one of the largest and most efficient phosphate processing industries in the world with experienced technical people, good management and internal know-how to suit the processing industry to the special characteristics of its rock. Unfortunately, the phosphate mines, exclusively run by CPG, have not kept pace with the development of the processing industry. Nevertheless, there are large reserves of rock with new, easier to mine, open pit deposits that can ensure the future with a more competitive supply. Bearing in mind that the end product from which Tunisia draws its economic benefits is processed phosphate, it is necessary to improve efficiency in existing mines and evaluate the prospect for future deposits.

9. The Phosphate Fertilizer Industry in Tunisia. Tunisia was the first North African rock phosphate producer to process domestic rock for export. The growing international market for intermediate and finished phosphate fertilizers has encouraged Tunisia to steadily increase its output of processed products and by 1982 about 65 percent of phosphate rock produced was processed before export. The 1972-81 decade saw dynamic development of the Tunisian fertilizer industry. Revenues from the sector increased from US\$30 million in 1972 to US\$335 million in 1981. The first phosphoric acid plant (116,000 tpy P<sub>2</sub>O<sub>5</sub>) of Industries Chimiques Maghrebines (ICM) came on stream in 1972 at Gabes. By the end of the 1970s additional aggregate capacities of 560,000 tpy P<sub>2</sub>O<sub>5</sub> as phosphoric acid,

143,000 tpy  $P_2O_5$  as TSP and 330,000 tpy  $P_2O_5$  as DAP, were set up in the country. In November 1982, a third phosphoric acid plant with a capacity of 165,000 tpy  $P_2O_5$  came on stream at the Gabes complex of ICM. The industry today consists principally of (i) three companies with production facilities located at Gabes: ICM, Societe Arabe des Engrais Phosphates et Azotes (SAEPA), and Engrais de Gabes (EDG); (ii) one company with production facilities located at Sfax: Societe Industrielle d'Acide Phosphorique et d'Engrais (SIAPE); (iii) one company with a plant located at Tunis: Societe Tunisienne d'Engrais Chimiques (STEC); and (iv) one company with a plant to be located at Gafsa: Industries Chimiques de Gafsa (ICG). Purchase of raw materials for all the companies and exports of phosphoric acid are managed centrally.

10. It is anticipated that the current decade will see more moderate growth. The VIth Plan (1982-86) forecasts that production volume of the sector will increase at about 6-7 percent p.a. Employment will tend to stabilize since new developments can utilize existing personnel. Only a few new projects are expected to commence operation during the VIth Plan. A new complex, managed by ICG is scheduled to start production by 1985, with a capacity of 160,000 tpy  $P_2O_5$  as phosphoric acid and 184,000 tpy  $P_2O_5$  as TSP. In addition, two new units for the production of 400,000 tpy DAP and 450,000 tpy NPK complex fertilizers are to be built at the EDG plant, in Gabes, by 1985.

11. The Tunisian fertilizer industry is sensitive to international trends particularly in regard to raw material and product prices. About 80 percent of the total production costs of fertilizers are for raw materials such as sulphur, rock and ammonia. Under the VIth Plan, special consideration will be given to projects for domestic production of gas-based ammonia and sulphuric acid, thus reducing the dependence of the phosphate industry on imported products.

12. The Tunisian fertilizer industry has already reached a high level of technical competence and should be able to achieve the production levels envisaged by the Plan. The main constraints to further development are the low grade of Tunisian rock and the high mining costs. Particularly as cheaper rock-producing competitors such as Morocco and Jordan increase their exports, the Tunisian fertilizer industry can survive in the longer term only if the rock can be produced competitively. Efforts in this direction are being given priority by the Government and are part of the proposed project.

13. The Phosphate Mining Industry in Tunisia. At present, CPG is the only operating phosphate mining company in Tunisia and is owned 99 percent by the State and its organizations. In 1981, a new phosphate company, (Societe d'Etudes de Phosphates de Sra Ouertane) was created to study the extensive new open pit deposits at Sra Ouertane, located in the northern Kef region. Extensive exploitation of Sra Ouertane is not expected until the next decade.

14. CPG operates 9 mines and 14 beneficiation plants within 60 km of Gafsa (Map IBRD 10273R2). CPG's operating installations and facilities include:

- (a) Mines: 7 underground mines at M'Dilla, Sehib, Metlaoui, Redeyef, M'Rata, Moulares, Kalaa Djerda (accounting for 50 percent of CPG's 1982 mine output) and 2 open pit mines at Kef Eschfair and Oum El Khecheb Islets (accounting for 35 percent of 1982 mine output). Underground mining uses room and pillar, sublevel caving and longwall methods with a widely varying degree of mechanization. The 2 open pit mines which started production in 1978 and 1980 are based on truck and shovel methods. Open pit mining is supplemented by contract mining (accounting for 15 percent of 1982 mine output); and
- (b) Beneficiation Plants: 8 washing plants located at M'Dilla, Sehib, Moulares, Kef Eschfair and Metlaoui (accounting for about three quarters of CPG's installed beneficiation capacity) and 6 air classification and drying units at Moulares, Redeyef and Kalaa Djerda, with a total installed beneficiation capacity of 12 million tpy. Over the past decade, beneficiation capacity was underutilized by 30-35 percent, mostly because mine output remained far below design capacity and production targets.

15. In the period 1975-82, mine and plant output increased by 35 and 47 percent, respectively. Meanwhile, CPG's unit production costs remained level in constant dollar terms but increased by 40 percent in constant Dinar terms. CPG's 1982 unit production cost of US\$39/ton of marketable phosphate was 20 to 40 percent higher than the cost of its competitors. Consequently, with rock sale prices averaging US\$32/ton, CPG has realized losses since 1977 (Table 1). This has been in contrast to the rapid output increases achieved by investing up to US\$600 million during 1975-82 for replacement, rehabilitation and expansion (Table 2). These investments included rapid mechanization amongst which the opening of two new open pit mines and the construction of associated beneficiation plants. Nevertheless, ineffective introduction of mechanization not coupled with the proper training, organization, maintenance, control and operating procedures; continued heavy reliance on underground mining; and the burden of surplus labor have prevented CPG from reaping the benefits of its heavy and untimely investments. In addition, the 65-68 percent BPL rock produced by CPG contrasts with the higher grade of its competitors such as Togo and Senegal (79-80 percent BPL), Jordan (73-74 percent BPL) Florida and Morocco (70-72 percent BPL). However, Tunisia by conceiving its phosphate sector as a processing sector, with phosphoric acid plants specially designed to treat the characteristics of this rock, has been able to circumvent the quality problem of its rock and in fact commands a premium for the high quality of its processed products.

16. The Market for Tunisian Phosphate Rock. Tunisian rock is used both for "direct application" as fertilizer and as feedstock for phosphate derivatives. With the build up of the domestic processing industry during the early 1970s, CPG's sales of phosphate rock for local processing grew from 1.2 million tons in 1973 to 3.3 million tons in 1982, or 74 percent of total sales in that year. As to future market prospects, the major structural change taking place at present in the world phosphate export market (para. 2) will impact on Tunisia. As Tunisia is already well established in the processed phosphate industry, it should benefit from a rapid growth of processed phosphates, provided rock can be made available in the right quantity at a reasonable price. The phosphate processing industry assumes that two plants, ICG and SIAPE, will be completed and be in operation by 1985 and 1987, respectively, and that thereafter through the 1990s one large-scale plant will come on stream for processed phosphates about every three years. As a result, domestic demand for rock would reach 5.0 million tons by 1985 and 6.2 million tons by 1990. In view of the limited 2 percent p.a. export growth prospects for phosphate rock in general and the difficult processing characteristics of Tunisian rock, an export market of 1.6 million tons by 1985 and 1.8 million tons by 1990 could at most be expected for CPG's output.

17. In summary, market prospects for Tunisian rock, i.e. CPG output, call for nearly a doubling of output by 1990 and about a 2.0 million ton increase by 1985 as detailed below.

Sales of Tunisian Beneficiated Phosphate Rock  
(Million tons)

	<u>1973</u>	<u>1974</u>	<u>1981</u>	<u>1982</u>	<u>1985</u>	<u>1990</u>
Local Processing Industry	1.2	1.3	3.1	3.3	5.0	6.2
Export Sales	<u>2.2</u>	<u>2.4</u>	<u>1.1</u>	<u>1.2</u>	<u>1.6</u>	<u>1.8</u>
Total	<u>3.4</u>	<u>3.7</u>	<u>4.2</u>	<u>4.5</u>	<u>6.6</u>	<u>8.0</u>

18. The most promising mines for major expansions are the Djellabia, Kef Eschfair, Oum El Khecheb and Sehib South open pit mines of CPG and the Sra Ouertane deposit. However, since exploitation from the new Sra Ouertane deposit will remain marginal during the coming 10 years because of special beneficiation circuitry that needs to be developed, CPG plans to assess and implement rock phosphate expansions at the other mines for the immediate future.

C. The Phosphate Component of the Project

19. The phosphate component of the proposed project is designed to assist CPG to address the development objectives of the VIth Plan, i.e., to improve productivity, output and unit costs of existing installations and complete preinvestment studies for possible expansions. During the implementation of Loan 1042-TUN, CPG's major managerial weaknesses were

recognized. The urgent need for major improvements in investment decision making and project management, on the one hand, and maintenance, control and operating procedures, on the other, became evident and were discussed between CPG and the Bank. CPG and the Government agreed with the assessment and requested Bank financial assistance to help CPG to meet the main objectives of the Vith Plan. The phosphate component of the proposed project comprises the following:

20. Organization and Management: Four specific areas of organizational, and management improvement will receive attention:

- (a) Financial Organization and Management, Cost Control and Monitoring: The overall organizational structure of CPG will be reviewed and proposals for a more efficient organizational structure worked out. A computerized management information and cost control system will be worked out and implemented. The work will be carried out over a period of 18 months and will require an estimated 35 man-months of which 20 will be on site;
- (b) Underground Mine Improvements: The operation of all CPG's underground mines will be reviewed to identify areas of inefficiency. Proposals will be worked out to increase efficiency through better organization and control of underground operations. A dialogue between the consultant and CPG will be maintained for the implementation and follow-up of the recommendations. The work will be carried out over a period of 2 years and will require an estimated 26 man-months of which 20 will be on site;
- (c) Reorganization of Spare Parts Management is urgent in order to liquidate the antiquated, unusable stocks and adjust CPG's management to the demands of equipment-intensive open pit mining (trucks, shovels, bulldozers) and mechanical underground mining (Load-Haul-Dump machines, drills). Existing services will be reviewed and a computerized inventory management system introduced for mining equipment spare parts. The work will be carried out over a period of 2 years and will require an estimated 49 man-months of which 37 will be on site; and
- (d) Reorganization of Personnel Administration will address present delays and inconsistencies of personnel administration services. Computerization of the payroll system will be introduced along with training by a team of up to 3 experts. The work will be carried out over a period of 2 years and will require an estimated 22 man-months on site.

21. Maintenance Improvements: CPG has a new central workshop with adequate equipment, but workers are still unfamiliar with the repair and overhaul of larger engines and hydraulics. Proper maintenance of process control equipment is another area where expertise is insufficient. Accordingly, (i) central workshop personnel will be trained over a period of 2 years by about 8 maintenance specialists for the different equipment recently introduced by CPG in open pits and mechanized underground mines and (ii) plant instrumentation personnel, in particular maintenance personnel for plant process control equipment, will be trained over a one-year period by 3 process control technicians.

22. Rehabilitation of Beneficiation Plants and Materials Handling: The old washing plants at Metlaoui and M'Dilla operate at a 60 percent utilization rate producing uneven quality rock. Furthermore, inadequate rock feed handling facilities at the M'Dilla washing plants are causing inefficiencies in production as well as adversely affecting product quality. Indications are that investments in ore feed handling systems and instrumentation are more economical than the installation of new beneficiation capacity. Under the proposed project, washing plant experts will evaluate the feasibility of plant rehabilitation and carry out subsequent engineering and supervision. CPG will consult with the Bank on the consultant's feasibility report prior to proceeding with rehabilitation investments.

23. Operations Improvement and Expansion Study of Kef Eschfair: Kef Eschfair, CPG's first and largest open pit mine started operation in 1978. Situated on 70 million tons proven reserves, the mine was designed for an output of 2.5 million tpy using trucks and shovels. Production reached 1.8 million tons in 1981 and remained at that level in 1982. The major reasons for the low utilization rate are difficulties in (i) providing the consistent maintenance support required, (ii) enforcing operating discipline, and (iii) implementing cost consciousness and control. As Kef Eschfair accounts for one third of CPG's mine capacity and reserves allow for expansion in the immediate future, improvements at Kef Eschfair have both immediate and longer-term significance. The proposed study for Kef Eschfair will analyze the major reasons for the present production shortfalls and develop procedures and operator training programs required to improve operations to design capacity. The most urgent training--of mobile equipment operators and maintenance personnel--will start immediately upon contract effectiveness to forestall further production declines. When production shortcomings are identified and are being remedied, a feasibility study and preliminary engineering for an expansion of up to 3.6 million tons will be carried out. The Kef Eschfair component work will require an estimated 174 man-months of which 115 will be on site and will be implemented during a 3-year period.

24. Feasibility Studies on New Mines: Whereas the activities described above are directed towards lowering CPG's production costs and improving existing operations and CPG's financial viability, CPG's extensive reserves and good market prospects call not only for consolidation but also expansion. Under the proposed phosphate component, therefore, feasibility studies will be completed for the development of 3 new open pit deposits:

- (a) Djellabia Feasibility Study will examine the feasibility of dragline mining and beneficiation by flotation. Proven reserves at Djellabia are 40 million tons of washable-grade ore and 50 million tons of flotation-grade ore. The feasibility study was contracted in 1980 with Morrison-Knudsen following Bank procedures, with cofinancing from USAID and Loan 1042-TU. Preliminary mine/plant design alternatives involving one or two draglines, hydroclassifiers and a flotation unit to produce about 0.7 to 2.9 million tpy beneficiated rock have been developed. The remaining detailed feasibility study should be completed by early 1984; and
- (b) Oum El Khecheb/Sehib South Feasibility Study will evaluate the 45 million ton Oum El Khecheb deposit northeast of Metlaoui and the 20 million ton Sehib South deposit south of Djellabia. In view of their similar geological structure and the coordination needed, the two deposits will be studied together. Production rates of 1.1-2.2 million tpy of washable ore from each deposit are being considered. Additional reserves of floatable ore at Sehib South will be studied for 1.3 million tpy of additional production. Optimal mine output and viability of the deposits will depend on the need to exploit a major portion of the reserves by open pit. Consultants experienced in open pit mining will be retained to complete the feasibility study by mid-1986.

## II. POTASH - SECTOR AND PROJECT COMPONENT DESCRIPTIONS

### A. The World Potash Industry

25. About 96 percent of all the potash mined in the world is used as fertilizer. The remainder is used for various industrial applications (detergents, textiles, glass and ceramics, catalysts, alkaline batteries, etc.). Potash resources are currently mined in the following eleven countries: the USSR, Canada, Federal Republic of Germany, German Democratic Republic, USA, France, Israel, Jordan, Spain, the United Kingdom, and Italy. Their total production is currently equivalent to about 27 million tpy of nutrient ( $K_2O$ ). Most of the industrial operations for potash production are based on underground bedded deposits of potash minerals, from which the ore is extracted by conventional hard rock mining methods, except in two locations where solution mining technology is employed. Naturally occurring brines provide the raw material in five potash refineries (out of the world total of 63). About 85 percent of the potash industry output is in the form of potassium chloride ( $KCl$ , 60 percent  $K_2O$ ). Potassium sulphate ( $SOP$ , 50 percent  $K_2O$ ) accounts for a



further 5 percent, with the rest consisting of partly crude and partly refined lower grade salts with  $K_2O$  content ranging between 15 and 45 percent.

26. Over the last two decades, world demand for potash fertilizers has increased at an average annual growth rate of about 6 percent. However, during the 1980s, demand is expected to grow at lower rates of about 4 percent per year, bringing  $K_2O$  demand to about 35 million tons per year by 1990. Consumption growth rates of between 7 and 8 percent p.a. are expected in Latin America, Africa and the Middle East, while more moderate growth rates of between 2 and 3 percent are expected in the industrialized countries in Europe and North America, which already consume potash intensively.

27. Potash in Tunisia is most likely to be produced in the form of SOP. Even though it contains about 20 percent less nutrient than KCl, SOP's selling price is higher since it is preferred for (i) crops which are sensitive to chlorine-based materials (e.g., tobacco and green-house vegetables) or which give improved yields and products when sulphate is available (e.g. citrus, grapes, potatoes, vegetables, etc.); and (ii) crops in saline soils where additional presence of chloride is undesirable. Most Mediterranean countries contain such areas.

28. SOP Production. SOP is manufactured by either of the following two commercial processes: (i) from ore or brine containing potassium sulphate or a mixture of potassium chloride and magnesium/calcium sulphate by physico-chemical separation processes; and (ii) from potassium chloride by chemical processing with sulphuric acid at high temperatures. The latter process (Mannheim process) requires large amounts of energy and of (costly) sulphuric acid. It also produces a highly toxic by-product which presents serious and costly disposal problems.

29. World production capacity of SOP is currently about 1.4 million tpy  $K_2O$ . About 60 percent of this capacity is based on chemical transformation of potassium chloride (Mannheim process). Belgium and Spain produce about 60 percent and 13 percent, respectively, of the world SOP production. No new large-scale SOP production project has been implemented in recent years nor is there any known firm new project for SOP production. The major reasons for this lack of new projects are first, the rather stable demand for SOP during the last decade, and, second, the limited and unreliable spot market for hydrochloric acid, the by-product of the Mannheim SOP process the disposal of which, as mentioned above, is costly and difficult.

30. SOP Trade. International trade of SOP accounts for about 0.7 million tpy  $K_2O$  or about 50 percent of production. While Canada and the USSR dominate the world KCl trade, Europe dominates the world SOP trade: the production capacity of Belgium and West Germany amount to about 35 percent of world capacity, and they supply about two-thirds of the internationally traded potassium sulphate. Currently, the main SOP importing areas are Northern Europe and the Mediterranean region (50 percent of world trade) and Asia (25 percent).

31. SOP Demand. World SOP demand reached 1.4 million tons in 1982. SOP demand grew at an average rate of 2.5 percent p.a. in the past decade, with the highest growth experienced in Eastern Europe, Africa and Asia. World SOP consumption growth is expected to slow and stabilize at about 2 percent p.a. up to 1995. This would bring total SOP demand to about 1.8 million tons of K<sub>2</sub>O in that year. This compares with a world capacity of 1.4 million tons (para. 29). Consequently, a tight supply/demand balance is expected to occur by then unless new production capacity is set up.

32. SOP Price Outlook. Historically, SOP prices have tended to increase at least at the same rate as those of KCl when market conditions were improving, and to stabilize more quickly when market conditions were worsening. As noted above (para. 27) SOP is sold at a premium over KCl: during the last five years the SOP/KCl price ratio has averaged 2:1 on a nutrient basis. It is expected that this ratio will continue to prevail during the next decade. As KCl prices are forecast to average about US\$100-125/ton fob, SOP prices are expected to average about US\$165-210/ton fob during that period (in 1983 terms).

#### B. Prospects for Future SOP Production in Tunisia

33. Tunisia is geographically well located with respect to the main areas of SOP consumption: the Mediterranean region and East Europe. Tunisian production based on extraction and processing of brines containing sulphates would avoid the cost of mining potash ores. In addition, it has reasonably good prospects of being competitive with chemically-derived SOP, as Tunisian brines can be processed to SOP without the use of sulfuric acid.

34. While nitrogen and phosphate usage in Tunisia has reached reasonable levels, potash utilization still remains very low. Potash is used mostly in the form of SOP with some limited quantities of potassium nitrate. Both are now totally imported and are mainly used for vegetable and citrus production. About 9,500 tons of potassium salts were imported in 1981. Even if potash demand were to increase significantly over the next decade, it appears unlikely that domestic demand will increase to levels that would justify a potash project for domestic use only. Thus any potash production facilities resulting from the proposed project would have to be export-oriented. Nevertheless, the substitution of potash imports, which now require foreign exchange expenditures of about US\$1.2 million per year (forecast to increase to US\$6 million by 1990), will be a desirable benefit from an eventual potash producing project.

#### C. The Potash Component of the Project

35. History. Potash brines occur in Tunisia in three major salt lakes (Map IBRD 17120 attached): El Melah (near the port of Zarzis), El Adibate (about 65 kilometers from Zarzis), and Chott El Jerid (in South-West Tunisia). Past geological and geochemical studies (para. 38 below) carried out on the 150 km<sup>2</sup> El Melah lake have confirmed that the potash

brines which occur in the aquifer situated between two impermeable layers contains large, and substantially homogeneous amounts of SOP. The potash reserves at EL Melah are estimated to be about 9 million tons expressed as potassium sulphate.

36. The El Adibate lake covers an area of about 100 km<sup>2</sup>. Only preliminary exploration work has been carried out by the Office National des Mines (ONM). Analyses of the brine based on samples collected near the surface indicate close similarity with the Zarzis brines. Preliminary estimates place the potash reserves at 4 to 6 million tons, again expressed as potassium sulphate. However, additional exploration work and treatment tests are necessary before knowledge on the El Adibate brines will be comparable with information available on the Zarzis brines.

37. Chott El Jerid, the largest of the salt lakes in the Algerian-Tunisian south, is a synclinal depression of marine origin located close to the Algerian border and immediately south of the Gafsa phosphate area. The lake covers an area of about 5,000 km<sup>2</sup>. Preliminary exploration work was carried out in 1949 by Mines de Potasse d'Alsace (MDPA) of France and in 1966 by Occidental Petroleum Corporation (OPC) of the USA on the northern accessible areas of the depression. A more extensive exploration program on Chott El Jerid was initiated in 1977 by CPG. Based on work carried out so far, potash reserves at Chott El Jerid are preliminarily estimated to be over 50 million tons expressed as potassium sulphate.

38. The most comprehensive studies have been carried out on the Zarzis deposit. The first industrial facility to exploit the brines of Zarzis was set up for the production of 2,000 tpy of bromine. These facilities also produced limited quantities of KCl and common salt. The Zarzis deposit was also studied between 1940 and 1946 by MDPA to produce potash, but a project never materialized due to lack of detailed information on available reserves. In 1960, ONM studied intensively the hydrogeological, geochemical and climatological aspects and carried out solar evaporation tests in pilot solar pans. The program was completed in 1971, but the project was never implemented. New interest in exploiting the Zarzis brines developed in 1980 out of the Government's plans to develop the southeastern region of Tunisia. Possible production of potash was considered an effective way to create a development center in that area. A new company, the Societe de Development des Industries Chimiques du Sud (SDICS) was formed in early 1981 to promote the Zarzis potash project and, later on, possibly to operate the complex. Partners in the above enterprise include several Government-owned fertilizer companies. SDICS contracted Dorchem International and Jacobs Engineering (USA) in May 1981 to analyze the technical aspects for producing SOP. Based on laboratory tests carried out by Dorchem and Jacobs, a process suitable for the Zarzis brines has been identified, consisting of the following steps: (a) the brines will be concentrated in open pans using solar evaporation during which about 80 percent of the sodium chloride (common salt) will be precipitated; (b) the residual brines will be desulphatized by thermic treatment (c) further precipitation of carnallite will take place in a

second section of the solar evaporation pans; (d) KCl will be recovered from the carnallite by decomposition and flotation; (e) KCl and kieserite will be chemically converted into shoenite; and (f) SOP will be produced by centrifugation of shoenite, followed by drying and compaction.

39. The above process is capable of producing SOP without using sulfuric acid, thus reducing significantly overall SOP production costs. Significant quantities of common salt are obtained as a by-product. Production of other by-products, such as magnesium chloride and bromine, is also possible but requires further studies. Based on the above laboratory tests, SDICS has tentatively proposed production of 140,000 tpy of SOP from the Zarzis deposit. The capacity proposed by SDICS is small by industry standards and a project based in Zarzis alone is thus likely to be only marginally economical. The Government has consequently proposed the execution of studies under this component of the proposed project. The component will develop adequate technical and economic information on the El Adibate and Chott el Jerid deposits so that the economics of a larger project can be evaluated, either as an integrated Zarzis-El Adibate project or as a large Chott El Jerid stand-alone project.

#### Project Description

40. The studies in this component would be carried out in two phases, and will concern the Zarzis, El Adibate and Chott El Jerid deposits.

41. Phase I. At Zarzis, the Phase I work will include (a) a critical analysis of the existing data on the deposits, geological surveys, pumping tests and geochemical analysis to provide reliable estimates of exploitable potash reserves; (b) laboratory and pilot plant tests to determine the most suitable technology to process the sulphate rich brines; (c) definition of the process parameters (material and energy balances and operating conditions); (d) determination of the transport requirements for the full scale project inputs and outputs; and (e) assessment of the technical and economic viability of the full scale project. At El Adibate, the Phase I work will include (a) drillings, pumping tests and geochemical analysis of brines; (b) laboratory and pilot tests of treatment of brines to determine the most suitable processing technology and (c) on the basis of (a) and (b) above and of the results of the concurrent work on Zarzis, preliminary basic engineering to integrate processing of the brine from Zarzis and El Adibate in one single potash production plant. At Chott El Jerid, the Phase I work will be similar to the work to be carried out at El Adibate, but, considering the distance between Chott El Jerid and the other two deposits and the size of reserves at Chott El Jerid, the exploitation of Chott El Jerid will be studied on the basis of a possible stand-alone full scale potash project.

42. During Phase I, a market study will identify the most likely markets for Tunisian potash products and forecast future price behavior in these markets. Comparative technoeconomic evaluations of potash production

at the three sites would then be conducted, taking into account the optimal full scale project at Zarzis alone, Zarzis and El Adibate together, or Chott El Jerid alone, to determine the most economic location and project configuration. Phase II work would be initiated only if this optimal full scale project is economically attractive.

43. Phase II. This Phase will finalize the feasibility study and basic engineering of the full-scale potash project selected in Phase I. The primary emphasis of the Phase II work would be to optimize the SOP production process and technology, provide detailed market, marketing and distribution analysis, and confirm the financial and economic viability of the full-scale project on the basis of the selected option.

44. The activities under this potash component will be implemented so as to minimize time and cost: (i) information from the three deposits will be gathered and coordinated so that an early evaluation of the prospects for a viable potash project would be available at the earliest and (ii) Phase I pilot brine tests from El Adibate and Chott El Jerid will be carried out at the Zarzis pilot plant, thus reducing the cost of the overall equipment required. In addition, most of the equipment utilized in Phase I for geological exploration, and laboratory and pilot plant tests, on each of the three deposits will be shifted to study the selected alternative during Phase II.

TUNISIA

MINING TECHNICAL ASSISTANCE PROJECT

CPG-Historical Income Statements, 1975-82  
(D Million)

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
<u>Sales Revenues</u>								
Gross Sales of Phosphates	55.6	46.5	43.0	39.4	41.8	75.5	81.8	88.1
Discounts	(4.4)	(5.1)	(2.2)	(1.1)	(0.6)	(2.4)	-	-
Sales of By-Products and Other Revenues	<u>1.2</u>	<u>1.2</u>	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>1.5</u>	<u>1.7</u>	<u>2.2</u>
Net Revenues	52.4	42.6	41.8	39.3	42.2	74.6	83.5	90.3
<u>Direct and Indirect Costs</u>								
Salaries and Wages	13.4	15.5	17.6	20.1	21.3	24.1	29.2	35.3
Purch. of Consumable Goods	9.2	9.5	9.4	13.2	12.7	13.3	23.1	27.4
Purch. of Outside Services	5.7	5.2	5.0	4.6	6.0	7.2	9.5	9.7
Transportation	5.6	6.8	8.6	9.9	10.0	13.3	14.3	14.5
Depreciation & Amort.	2.8	4.4	5.6	7.0	12.9	16.3	20.5	27.6
Other	1.0	1.3	1.4	2.0	4.5	6.4	10.7	7.7
Less:								
Self-constructed assets	(3.7)	(4.3)	(5.7)	(7.0)	(5.4)	(3.0)	(3.7)	(4.3)
Incr. phosphates inv.	(10.6)	4.0	3.4	0.2	(3.9)	1.0	(14.3)	(0.5)
Incr. cons. goods inv.	<u>(1.8)</u>	<u>(1.4)</u>	<u>(1.4)</u>	<u>(2.4)</u>	<u>(1.8)</u>	<u>1.0</u>	<u>(6.6)</u>	<u>(7.9)</u>
Total Costs	<u>21.6</u>	<u>41.0</u>	<u>43.9</u>	<u>47.6</u>	<u>56.3</u>	<u>79.6</u>	<u>82.7</u>	<u>109.5</u>
Operating Income	30.8	1.6	(2.1)	(8.3)	(14.1)	(5.0)	0.8	(19.2)
Prior Period Adjustments	(1.5)	(0.5)	1.1	(0.3)	(1.6)	(0.3)	1.5	1.1
Extraordinary Items	(0.6)	0.4	0.1	(0.4)	(0.8)	(0.5)	(0.4)	(1.5)
Taxes	<u>(15.4)</u>	<u>(0.4)</u>	<u>(0.4)</u>	<u>(0.5)</u>	<u>(0.4)</u>	<u>(0.5)</u>	<u>(0.6)</u>	<u>(0.6)</u>
Net Income (Loss)	<u>13.3</u>	<u>1.1</u>	<u>(1.3)</u>	<u>(9.5)</u>	<u>(16.9)</u>	<u>(6.3)</u>	<u>1.3</u>	<u>(20.2)</u>
Average Exchange Rate (D/US\$)	0.40	0.43	0.43	0.42	0.41	0.41	0.49	0.60

TUNISIA

MINING TECHNICAL ASSISTANCE PROJECT

CPG-Historical Balance Sheets, 1975-82  
(D Million)

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
<b>ASSETS</b>	<u>71.9</u>	<u>85.2</u>	<u>98.9</u>	<u>165.1</u>	<u>182.6</u>	<u>194.7</u>	<u>245.2</u>	<u>293.8</u>
<u>Current Assets</u>	<u>43.4</u>	<u>38.9</u>	<u>32.1</u>	<u>45.4</u>	<u>35.7</u>	<u>40.3</u>	<u>63.9</u>	<u>95.8</u>
Cash and Bank	14.1	9.9	6.7	3.9	4.6	7.4	3.1	21.9
Receivables	6.6	8.1	11.6	16.0	9.4	13.2	20.2	24.9
Available Capital	5.0	5.0	-	9.5	-	-	-	-
Phosphate Inventories	13.0	9.5	6.0	5.8	9.7	8.7	23.0	23.5
Con. Goods Inventories	4.7	6.4	7.8	10.2	12.0	11.0	17.6	25.5
<u>Fixed Assets</u>	<u>24.2</u>	<u>37.6</u>	<u>57.4</u>	<u>109.2</u>	<u>137.1</u>	<u>145.5</u>	<u>164.8</u>	<u>172.8</u>
Gross Fixed Assets	44.9	64.1	88.5	146.8	186.6	210.6	250.4	285.4
Less: Depreciation	(20.7)	(26.5)	(31.1)	(37.6)	(49.5)	(65.1)	(85.6)	(112.6)
<u>Other Assets</u>	<u>4.3</u>	<u>8.7</u>	<u>9.4</u>	<u>10.5</u>	<u>9.8</u>	<u>8.9</u>	<u>16.5</u>	<u>25.2</u>
<b>LIABILITIES &amp; EQUITY</b>	<u>71.9</u>	<u>85.2</u>	<u>98.9</u>	<u>165.1</u>	<u>182.6</u>	<u>194.7</u>	<u>245.2</u>	<u>293.8</u>
<u>Current Liabilities</u>	<u>15.9</u>	<u>22.1</u>	<u>27.3</u>	<u>50.5</u>	<u>47.5</u>	<u>52.4</u>	<u>88.6</u>	<u>121.6</u>
Current Maturity of LTD	0.6	1.3	2.6	8.0	6.3	8.9	21.9	23.3
Payables	15.3	20.8	24.7	42.5	41.2	43.5	66.7	98.3
<u>Long-Term Debt</u>	<u>4.4</u>	<u>7.7</u>	<u>14.9</u>	<u>50.9</u>	<u>84.4</u>	<u>97.7</u>	<u>98.2</u>	<u>127.8</u>
Principal	4.4	7.7	14.9	50.9	84.4	97.7	91.0	110.1
Interest Allocation	-	-	-	-	-	-	7.2	17.7
<u>Equity</u>	<u>51.6</u>	<u>55.4</u>	<u>56.7</u>	<u>63.7</u>	<u>50.7</u>	<u>44.6</u>	<u>58.4</u>	<u>44.4</u>
Capital	12.7	14.5	17.5	30.0	30.0	30.0	30.0	39.0
Reserves	38.4	33.6	38.1	28.7	12.0	6.1	7.1	(11.5)
Provisions	0.5	7.3	1.1	5.0	8.7	8.5	21.3	16.9

TUNISIA

MINING TECHNICAL ASSISTANCE PROJECT

CPG Key Performance Indicators

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>Average Annual Growth (%) 1975-82</u>
<b>I. <u>Mines</u></b>									
<b>Million tons</b>									
Production	5.5	4.8	5.1	5.9	6.5	7.7	8.5	7.4	4.3
- Underground	4.2	4.0	4.1	4.2	4.2	4.6	4.2	3.6	(2.2)
- Open pit	1.3	0.8	1.0	1.7	2.3	3.2	4.3	3.8	16.6
<b>II. <u>Beneficiation Plants</u></b>									
<b>Million tons</b>									
Production	3.2	3.3	3.6	3.7	4.1	4.5	4.9	4.7	5.6
<b>III. <u>Financial Indicators</u></b>									
<b>Production Cost</b>									
Current US\$/ton	25	26	26	30	36	43	40	39	6.6
1975 US\$/ton	25	26	24	23	25	27	27	27	1
<b>Net Income</b>									
TD million	13.3	1.1	(1.3)	(9.5)	(16.9)	(6.3)	1.3	(20.2)	
<b>Gross Fixed Assets</b>									
TD million	44.9	64.1	88.5	146.8	186.6	210.6	250.4	285.4	30.2
<b>Current Ratio</b>									
Debt:Equity Ratio <u>/a</u>	2.7	1.8	1.2	0.9	0.8	0.8	0.7	0.8	
	8:92	14:86	21:79	46:54	67:33	73:27	71:29	80:20	

/a Debt excludes interest allocation and portion not drawn down, equity excludes provisions.



**TUNISIA**  
**MINING TECHNICAL ASSISTANCE PROJECT**  
**Phosphate and Mining Policy Components**  
**Man-month and Cost Estimates**

<u>Phosphate Component</u>	<u>Man-months</u>		<u>Cost (Million)</u>			<u>Implementing Agency</u>
	<u>Foreign Consultants</u>	<u>Local Staff</u>	<u>Foreign</u>	<u>Local</u>	<u>Total</u>	
1. Financial Organization and Management, Cost Control and Monitoring	35	20	0.4	0.1	0.5	CPG
2. Underground Mine Improvements	26	20	0.4	0.1	0.5	CPG
3. Reorganization of Spare Parts Management	49	37	0.6	0.2	0.8	CPG
4. Reorganization of Personnel Administration	22	22	0.3	0.1	0.4	CPG
5. Training for Central Workshops Maintenance	72	69	0.8	0.3	1.1	CPG
6. Training for Plant Instrumentation Maintenance	22	22	0.2	0.1	0.3	CPG
7. Rehabilitation of Beneficiation Plants and Materials Handling	74	30	0.8	0.1	0.9	CPG
8. Operations Improvement and Expansion of Kef Eschfair	174	115	1.9	0.5	2.4	CPG
9. Djellabia Feasibility Study	51	4	0.7	0.1	0.8	CPG
10. Oum El Khecheb/ Sehib South Feasibility Study	78	18	0.8	0.1	0.9	CPG
<u>Mining Policy Component</u>						
ONM Organization Study	12	7	0.2	0.1	0.3	ONM
<u>Base Cost</u>			<u>7.1</u>	<u>1.8</u>	<u>8.9</u>	
Physical contingencies			1.0	0.2	1.2	
Price contingencies			1.6	0.4	2.0	
<u>Total Components Cost</u>			<u>9.7</u>	<u>2.4</u>	<u>12.1</u>	

TUNISIA  
MINING TECHNICAL ASSISTANCE PROJECT  
Potash Component  
Man-month and Cost Estimates

	<u>Man-months</u>		<u>Cost (Million)</u>			<u>Implementing Agency</u>
	<u>Foreign consultants</u>	<u>Local Staff</u>	<u>Foreign</u>	<u>Local</u>	<u>Total</u>	
<u>Phase I</u>						
Zarzis: Personnel	221	1,110	2.3	0.7	3.0	SDICS
Equipment			0.8	0.7	1.5	
El Adibate: Personnel	24	800	0.3	0.4	0.7	ONM
Equipment			0.6	0.4	1.0	
Chott El Jerid: Personnel	4	1,056	0.1	0.6	0.7	CPG
Equipment			0.6	0.2	0.8	
Technical Adv. Services	69	-	0.7	0.2	0.9	DMG
Prelim. Market Study	4	-	0.1	-	0.1	DMG
<u>Phase II: Feasibility Study</u>						
Personnel	38	2,034	0.8	1.0	1.8	t.b.d. /1
Equipment			0.3	0.5	0.8	
Base Cost			<u>6.6</u>	<u>4.7</u>	<u>11.3</u>	
Physical conting. /2			0.3	0.3	0.6	
Price conting. /2			<u>0.3</u>	<u>0.3</u>	<u>0.6</u>	
<u>Total Component Cost</u>			<u>7.2</u>	<u>5.3</u>	<u>12.5</u>	

/1 To be determined in the light of results of Phase I studies.

/2 Does not include contingencies for Phase I of Zarzis for which the full cost is included in base cost for this component.

T A B L E 3A

TUNISIA TUNISIA	- SOCIAL INDICATORS DATA SHEET				
				REFERENCE GROUPS (WEIGHTED AVERAGES) /a	
	1960/ <sup>b</sup>	1970/ <sup>b</sup>	MOST RECENT ESTIMATE / <sup>b</sup>	MIDDLE INCOME N. AFRICA & MED EAST	MIDDLE INCOME LAT. AMERICA & CARIB
AREA (THOUSAND SQ. KM)					
TOTAL	163.6	163.6	163.6	-	-
AGRICULTURAL	69.6	70.3	72.5	-	-
GDP PER CAPITA (US\$)	210.0	370.0	1420.0	1340.0	2088.2
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF COAL EQUIVALENT)	173.0	361.0	652.0	810.4	1407.6
POPULATION AND VITAL STATISTICS					
POPULATION, P.L.D-YEAR (THOUSANDS)	4221.0	5127.0	6528.0	-	-
URBAN POPULATION (% OF TOTAL)	36.0	43.5	52.9	47.6	65.9
POPULATION PROJECTIONS-					
POPULATION IN YEAR 2000 (MILL.)			10.1	-	-
STATIONARY POPULATION (MILL.)			19.5	-	-
YEAR STATIONARY POP. REACHED			2110	-	-
POPULATION DENSITY					
PER SQ. KM.	25.8	31.3	38.9	36.0	35.6
PER SQ. KM. AGRIC. LAND	60.7	72.9	87.8	449.0	93.2
POPULATION AGE STRUCTURE (%)					
0-14 YRS	43.4	46.2	40.7	63.9	40.1
15-64 YRS	52.5	50.0	55.6	52.8	55.8
65 AND ABOVE	4.2	3.8	3.7	3.3	4.1
POPULATION GROWTH RATE (%)					
TOTAL	1.8/ <sup>c</sup>	1.9/ <sup>c</sup>	2.2/ <sup>c</sup>	2.9	2.3
URBAN	3.2	3.8	4.0	4.6	3.7
CRUDE BIRTH RATE (PER THOUS)	48.9	40.6	34.2	42.5	31.5
CRUDE DEATH RATE (PER THOUS)	21.0	16.6	9.1	12.0	8.1
GROSS REPRODUCTION RATE	3.5	3.2	2.5	3.0	2.0
FAMILY PLANNING					
ACCEPTORS, ANNUAL (THOUS)	..	29.2	180.9	-	-
USERS (% OF MARRIED WOMEN)	..	10.0	21.3	..	..
FOOD AND NUTRITION					
INDEX OF FOOD PROD. PER CAPITA (1969-71=100)	97.0	96.0	127.0	97.5	113.0
PER CAPITA SUPPLY OF					
CALORIES (% OF REQUIREMENTS)	83.0	88.0	116.0	102.3	111.3
PROTEINS (GRAMS PER DAY)	52.0	57.0	76.0	72.0	67.9
OF WHICH ANIMAL AND PULSE	13.0	14.0	23.0/ <sup>d</sup>	17.8	36.1
CHILD (AGES 1-4) DEATH RATE	36.1	24.5	9.1	15.2	5.3
HEALTH					
LIFE EXPECT. AT BIRTH (YEARS)	48.1	54.2	60.6	57.2	64.6
INFANT MORT. RATE (PER THOUS)	158.9	131.3	87.6	104.2	62.6
ACCESS TO SAFE WATER (ZPOP)					
TOTAL	..	49.0	63.0/ <sup>e,f</sup>	59.3	64.8
URBAN	..	..	97.0/ <sup>e,f</sup>	84.9	77.8
RURAL	..	..	25.0/ <sup>e,f</sup>	37.5	44.3
ACCESS TO EXCRETA DISPOSAL (% OF POPULATION)					
TOTAL	..	62.0	..	..	54.6
URBAN	..	100.0	42.0/ <sup>e</sup>	..	69.8
RURAL	..	34.0	..	..	29.8
POPULATION PER PHYSICIAN	10030.0	5930.0	3690.0	3536.0	1776.0
POP. PER NURSING PERSON	..	730.0	890.0	1820.7	1012.2
POP. PER HOSPITAL BED					
TOTAL	410.0	410.0	460.0	643.3	477.0
URBAN	230.0/ <sup>g</sup>	310.0	350.0/ <sup>h</sup>	545.0	667.5
RURAL	1040.0/ <sup>g</sup>	1270.0	1230.0/ <sup>h</sup>	2462.0	1921.6
ADMISSIONS PER HOSPITAL BED	..	24.1	25.0/ <sup>h</sup>	26.4	27.2
HOUSING					
AVERAGE SIZE OF HOUSEHOLD					
TOTAL	..	5.1/ <sup>i</sup>	5.5/ <sup>j</sup>	..	..
URBAN	..	5.1/ <sup>i</sup>	5.5/ <sup>j</sup>	..	..
RURAL	..	5.1/ <sup>i</sup>	5.6/ <sup>j</sup>	..	..
AVERAGE NO. OF PERSONS/ROOM					
TOTAL	..	3.2/ <sup>i</sup>	3.1/ <sup>j</sup>	..	..
URBAN	..	2.7/ <sup>i</sup>	2.6/ <sup>j</sup>	..	..
RURAL	..	3.6/ <sup>i</sup>	3.8/ <sup>j</sup>	..	..
ACCESS TO ELECT. (% OF DWELLINGS)					
TOTAL	..	24.0/ <sup>k</sup>	34.2/ <sup>k</sup>	46.2	..
URBAN	..	..	68.2/ <sup>k</sup>	77.6	..
RURAL	..	..	6.0/ <sup>k</sup>	16.1	..

TABLE 3A

TUNISIA TUNISIA	- SOCIAL INDICATORS DATA SHEET				
			REFERENCE GROUPS (WEIGHTED AVERAGES) /a		
	1960/b	1970/b	MOST RECENT ESTIMATE /b	MIDDLE INCOME N. AFRICA & MID EAST	MIDDLE INCOME LAT. AMERICA & CARIB
<b>EDUCATION</b>					
ADJUSTED ENROLLMENT RATIOS					
PRIMARY: TOTAL	66.0	101.0	103.0	89.6	105.0
MALE	88.0	121.0	118.0	106.3	106.3
FEMALE	43.0	80.0	88.0	72.4	103.6
SECONDARY: TOTAL	12.0	23.0	27.0	41.7	40.0
MALE	19.0	33.0	34.0	52.8	38.6
FEMALE	5.0	13.0	20.0	31.2	41.2
VOCATIONAL (% OF SECONDARY)	23.5	11.1	27.3	10.3	34.0
PUPIL-TEACHER RATIO					
PRIMARY	61.0	47.0	39.0	31.9	30.7
SECONDARY	16.0	28.0	20.0	23.3	16.7
ADULT LITERACY RATE (%)	15.5	24.0/i	62.0	43.3	79.5
<b>CONSUMPTION</b>					
PASSENGER CARS/THOUSAND POP	10.5	13.0	18.3/j	18.0	45.6
RADIO RECEIVERS/THOUSAND POP	40.3	75.7	157.0	138.1	228.2
TV RECEIVERS/THOUSAND POP	0.1	14.0	47.1	45.6	108.3
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	18.6	15.9	43.6	31.0	66.1
CINEMA ANNUAL ATTENDANCE/CAPITA	1.6	..	1.5/d	1.7	2.9
<b>LABOR FORCE</b>					
TOTAL LABOR FORCE (THOUS)	1138.0	1215.0	1693.0	-	-
FEMALE (PERCENT)	6.0	7.7	8.4	10.7	24.8
AGRICULTURE (PERCENT)	56.0	50.0	35.0	42.5	31.3
INDUSTRY (PERCENT)	18.0	21.0	32.0	27.8	23.9
PARTICIPATION RATE (PERCENT)					
TOTAL	27.0	23.7	25.9	25.6	31.3
MALE	50.2	44.2	46.9	45.4	49.8
FEMALE	3.3	3.6	4.4	5.6	14.8
ECONOMIC DEPENDENCY RATIO	1.8	2.1	1.7	1.8	1.4
<b>INCOME DISTRIBUTION</b>					
PERCENT OF PRIVATE INCOME RECEIVED BY					
HIGHEST 5% OF HOUSEHOLDS	..	..	17.0/i	..	..
HIGHEST 20% OF HOUSEHOLDS	..	..	42.0/i	..	..
LOWEST 20% OF HOUSEHOLDS	..	..	6.0/i	..	..
LOWEST 40% OF HOUSEHOLDS	..	..	15.0/i	..	..
<b>POVERTY TARGET GROUPS</b>					
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)					
URBAN	..	..	206.0/d	276.1	289.8
RURAL	..	..	97.0/d	177.1	184.5
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)					
URBAN	..	..	193.0/d	400.0	519.8
RURAL	..	..	193.0/d	283.3	372.1
ESTIMATED POP. BELOW ABSOLUTE POVERTY INCOME LEVEL (%)					
URBAN	..	..	20.0/d	22.0	..
RURAL	..	..	15.0/d	30.8	..

.. NOT AVAILABLE  
 . NOT APPLICABLE

NOTES

/a The group averages for each indicator are population-weighted arithmetic means. Coverage of countries among the indicators depends on availability of data and is not uniform.

/b Unless otherwise noted, "Data for 1960" refer to any year between 1959 and 1961; "Data for 1970" between 1969 and 1971; and data for "Most Recent Estimate" between 1979 and 1981.

/c Due to emigration, population growth rate is lower than rate of natural increase; /d 1977; /e 1982; /f Access to piped water only; /g 1962; /h 1976; /i 1966; /j 1975.

DEFINITIONS OF SOCIAL INDICATORS

Notes: Although the data are drawn from sources generally judged the most authoritative and reliable, it should also be noted that they may not be internationally comparable because of the lack of standardized definitions and concepts used by different countries in collecting the data. The data are, nonetheless, useful to describe orders of magnitude, indicate trends, and characterize certain major differences between countries.

The reference groups are (1) the most country group of the subject country and (2) a country group with somewhat higher average income than the country group of the subject country (except for "High Income" Oil Exporters' group where "Middle Income North Africa and Middle East" is chosen because of stronger socio-cultural affinities). In the reference group data the averages are population weighted arithmetic means for each indicator and shown only when majority of the countries in a group has data for that indicator. Since the coverage of countries among the indicators depends on the availability of data and is not uniform, caution must be exercised in relating averages of one indicator to another. These averages are only useful in comparing the value of one indicator at a time among the country and reference groups.

AREA (thousand sq.km.)

Total - Total surface area comprising land area and inland waters; 1960, 1970 and 1980 data.  
Agricultural - Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to its fallow; 1960, 1970 and 1980 data.

GDP PER CAPITA (US\$) - GDP per capita estimates at current market prices, calculated by same conversion method as World Bank Atlas (1979-81 basis); 1960, 1970, and 1981 data.

ENERGY CONSUMPTION PER CAPITA - Annual apparent consumption of commercial primary energy (coal and lignite, petroleum, natural gas and hydro, nuclear and geothermal electricity) in kilograms of coal equivalent per capita; 1960, 1970, and 1980 data.

POPULATION AND VITAL STATISTICS

Total Population, mid-year (thousands) - As of July 1; 1960, 1970, and 1981 data.

Urban Population (percent of total) - Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries; 1960, 1970, and 1981 data.

Population Projections

Population in year 2000 - Current population projections are based on 1980 total population by age and sex and their mortality and fertility rates. Projection parameters for mortality rates comprise of three levels assuming life expectancy at birth increasing with country's per capita income level, and female life expectancy stabilizing at 77.5 years. The parameters for fertility rate also have three levels assuming decline in fertility according to income level and past family planning performance. Each country is then assigned one of these nine combinations of mortality and fertility trends for projection purposes.

Stationary population - In a stationary population there is no growth since the birth rate is equal to the death rate, and also the age structure remains constant. This is achieved only after fertility rates decline to the replacement level of unit net reproduction rate, when each generation of women replaces itself exactly. The stationary population size was estimated on the basis of the projected characteristics of the population in the year 2000, and the rate of decline of fertility rate to replacement level.  
Year stationary population is reached - The year when stationary population size will be reached.

Population Density

Per sq. km. - Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970, and 1980 data.  
Per sq. km. agricultural land - Computed as above for agricultural land only; 1960, 1970 and 1980 data.

Population Age Structure (percent) - Children (0-14 years), working-age (15-64 years), and retired (65 years and over) as percentages of mid-year population; 1960, 1970, and 1981 data.

Population Growth Rate (percent) - Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-81.  
Population Growth Rate (percent) - urban - Annual growth rates of urban populations for 1950-60, 1960-70, and 1970-81.

Crude Birth Rate (per thousand) - Annual live births per thousand of mid-year population; 1960, 1970, and 1981 data.

Crude Death Rate (per thousand) - Annual deaths per thousand of mid-year population; 1960, 1970, and 1981 data.

Gross Reproduction Rate - Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1981.

Family Planning - Acceptors, Annual (thousands) - Annual number of acceptors of birth-control devices under auspices of national family planning program.

Family Planning - Users (percent of married women) - Percentage of married women of child-bearing age (15-44 years) who use birth-control devices in all married women in same age group.

FOOD AND NUTRITION

Index of Food Production per Capita (1960=71=100) - Index of per capita annual production of all food commodities. Production includes seed and feed and is on a calendar year basis. Commodities cover primary goods (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are included). Aggregate production of each country is based on national average producer price weights; 1961-63, 1970, and 1981 data.

Per capita supply of calories (percent of requirements) - Computed from energy equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, imports less exports, and other supplies including animal feed, seeds, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distribution of population, and allowing 10 percent for waste at household level; 1961-63, 1970 and 1980 data.

Per capita supply of protein (grams per day) - Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for minimum allowances of 40 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Survey; 1961-63, 1970 and 1980 data.

Per capita protein supply from animal and pulse - Protein supply of food derived from animals and pulses in grams per day; 1961-63, 1970 and 1977 data.

Child (ages 1-4) Death Rate (per thousand) - Annual deaths per thousand in age group 1-4 years, in children in this age group; for most developing countries data derived from life tables; 1960, 1970 and 1981 data.

HEALTH

Life Expectancy at Birth (years) - Average number of years of life remaining at birth; 1960, 1970 and 1981 data.

Infant Mortality Rate (per thousand) - Annual deaths of infants under one year of age per thousand live births; 1960, 1970 and 1981 data.

Access to Safe Water (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs, and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the household or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

Access to Sewers Disposal (percent of population) - total, urban, and rural - Number of people (total, urban, and rural) served by sewers disposal as percentages of their respective populations. Sewers disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit latrines and similar installations.

Population per Physician - Population divided by number of practicing physicians qualified from a medical school at university level.

Population per Nursing Person - Population divided by number of practicing male and female graduate nurses, assistant nurses, practical nurses and nursing auxiliaries.

Population per Hospital Bed - total, urban, and rural - Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private general and specialized hospital and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities. For statistical purposes urban hospitals include both principal/general hospitals, and rural hospitals, local or rural hospitals and medical and maternity centers. Specialized hospitals are included only under total.  
Admissions per Hospital Bed - Total number of admissions to or discharges from hospitals divided by the number of beds.

HOUSING

Average Size of Household (persons per household) - total, urban, and rural - A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

Average number of persons per room - total, urban, and rural - average number of persons per room in all urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

Access to Electricity (percent of dwellings) - total, urban, and rural - Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

EDUCATION

Adjusted Enrollment Ratios

Primary school - total, male and female - Gross total, male and female enrollment of all ages at the primary level as percentages of respective primary school-age populations; normally includes children aged 6-11 years but adjusted for different lengths of primary education; for countries with universal education enrollment may exceed 100 percent since some pupils are below or above the official school age.

Secondary school - total, male and female - Computed as above; secondary education requires at least four years of approved primary instruction; provides general, vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

Vocational enrollment (percent of secondary) - vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

Pupil-teacher ratio - primary, and secondary - Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

Adult literacy rate (percent) - literate adults (able to read and write) as a percentage of total adult population aged 15 years and over.

CONSUMPTION

Passenger Cars (per thousand population) - Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearse and military vehicles.

Radio Receivers (per thousand population) - All types of receivers for radio broadcasts to general public per thousand of population; excludes unlicensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

TV Receivers (per thousand population) - TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

Newspaper circulation (per thousand population) - Shows the average circulation of the central national newspaper, defined as a periodical publication devoted primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

Cinema Annual Attendance per Capita per Year - Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

LABOR FORCE

Total Labor Force (thousands) - Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1981 data.  
Female (percent) - Female labor force as percentage of total labor force.  
Agriculture (percent) - Labor force in farming, forestry, hunting and fishing as percentage of total labor force; 1960, 1970 and 1981 data.  
Industry (percent) - Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1981 data.

Participation Rate (percent) - total, male, and female - Participation or activity rates are computed as total, male, and female labor force as percentages of total, male and female population of all ages respectively; 1960, 1970, and 1981 data. These are based on ILO's participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.  
Economic Dependency Ratio - Ratio of population under 15 and 65 and over to the total labor force.

INCOME DISTRIBUTION

Percentage of Private Income (both in cash and kind) - Received by richest 5 percent, richest 20 percent, poorest 20 percent, and poorest 40 percent of households.

POVERTY TARGET GROUPS

The following estimates are very approximate measures of poverty levels, and should be interpreted with considerable caution.

Estimated Absolute Poverty Income Level (US\$ per capita) - urban and rural - Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

Estimated Relative Poverty Income Level (US\$ per capita) - urban and rural - Rural relative poverty income level is one-third of average per capita personal income of the country. Urban level is derived from the rural level with adjustment for higher cost of living in urban areas.

Estimated Population below Absolute Poverty Income Level (percent) - urban and rural - Percent of population (urban and rural) who are absolute poor.

TUNISIA - ECONOMIC INDICATORS

Population: 6.5 million (mid-1981)  
GNP per Capita: \$1,420 (1981)

Indicator	Amount (million US\$ at current prices) 1982	Annual Growth Rates (at 1980 prices)									
		Actual						Projected			
		1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
<b>NATIONAL ACCOUNTS</b>											
Gross domestic product <sup>1/</sup>	7,905.9	5.3	7.1	7.1	6.0	5.0	1.5	7.3	6.0	5.8	5.6
Agriculture	1,005.6	-10.2	4.5	-4.8	6.1	6.6	-8.7	11.5	4.0	3.9	3.7
Industry	2,485.0	9.8	9.0	11.9	9.9	1.6	0.0	7.5	7.3	7.0	6.7
Services	3,370.7	5.6	7.4	8.7	3.9	8.3	4.9	6.3	6.1	5.9	5.7
Consumption	6,297.6	10.4	5.8	4.6	9.9	7.2	4.7	6.9	7.3	6.2	3.9
Gross investment	2,370.1	6.9	12.9	3.9	5.8	14.5	-3.7	-0.4	1.2	1.0	1.8
Exports of goods and NFS	2,903.3	5.5	8.2	23.3	0.7	3.0	-6.5	20.4	7.2	8.3	13.7
Imports of goods and NFS	3,665.1	16.7	9.6	14.3	7.2	13.0	-3.2	11.8	6.3	5.9	7.4
Gross national product	7,948.2	5.8	7.9	7.5	6.5	5.2	1.6	7.2	5.9	5.6	5.3
Gross national savings	1,650.6	-7.2	14.8	21.8	-7.2	-1.1	-10.8	8.2	0.5	3.1	11.5
<b>PRICES</b>											
GDP deflator		76.0	80.1	88.3	100.0	110.9	124.9				
Exchange rate		2.33	2.40	2.46	2.47	2.03	1.69				

	Share of GDP at market prices (%) (at current prices)						Average Annual Increase (%) (at constant prices)			
	1971	1976	1981	1982	1986	1991	1971-76	1976-81	1981-86	1986-91
	Gross domestic product <sup>1/</sup>	100.0	100.0	100.0	100.0	100.0	100.0	8.8	6.0	5.3
Agriculture	18.8	18.1	13.6	12.7	12.5	11.7	8.2	0.4	2.7	3.5
Industry	20.6	25.9	32.1	31.4	30.9	32.2	10.2	7.8	5.7	5.8
Services	47.7	42.9	41.3	42.6	43.6	43.9	8.3	7.2	5.8	5.1
Consumption	82.0	77.5	76.8	79.7	81.5	78.4	9.6	7.5	5.6	3.8
Gross investment	20.0	30.4	32.2	30.0	25.9	25.5	14.1	8.6	0.6	4.2
Exports of goods and NFS	23.8	29.1	42.1	36.7	41.4	41.3	5.6	7.9	8.2	6.3
Imports of goods and NFS	25.8	37.1	51.1	46.4	48.9	45.1	13.1	12.1	5.6	4.0
Gross national product	99.6	98.7	100.9	100.5	99.6	99.2	8.5	6.5	5.4	4.9
Net factor income	-0.4	-1.3	0.9	0.5	-0.4	-0.8	-	-	-	-
Gross national savings	17.6	21.1	24.1	20.9	18.0	20.8	2.9	3.4	2.9	8.8

	As % of GDP (at current prices)				
	1971	1976	1981	1982	
	<b>PUBLIC FINANCE</b>				
Current revenue		21.4	24.2	30.0	32.6
Current expenditure		18.9	18.5	22.4	24.9
Surplus (+) or deficit (-)		2.5	5.7	7.5	7.6
Capital expenditure		6.9	11.4	9.2	9.8
Foreign financing		3.2	1.7	1.4	1.9

	1971-76	1976-81	1981-86	1986-91
<b>OTHER INDICATORS</b>				
GNP growth rate (%)	8.4	6.5	5.0	4.9
GNP per capita growth rate (%)	5.4	3.1	2.7	2.3
ICOP	2.7	5.4	6.0	5.4
Marginal savings rate	24.0	26.0	12.2	24.4
Import elasticity	1.51	2.02	1.06	0.82

<sup>1/</sup> GDP at market prices and components at factor cost.

TUNISIA - EXTERNAL TRADE

Population: 6.5 million (mid-1981)  
GNP per Capita: \$1,420 (1981)

Indicator	Amount (million US\$ at current prices) 1982	Annual Growth rates (at 1980 Prices)									
		Actual					Projected				
		1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
<b>EXTERNAL TRADE</b>											
Merchandise exports	1,989.2	9.7	9.6	20.7	0.8	3.3	-4.6	26.0	7.1	8.6	16.0
Crude oil	866.8	12.4	12.8	12.4	0.2	-8.8	-22.4	37.0	-1.8	1.8	-0.1
Other primary	97.3	4.9	-15.7	25.1	-11.9	-0.4	-17.9	8.2	8.3	8.2	8.2
Manufactures	1,025.1	6.8	10.4	33.3	3.6	20.3	15.2	19.8	14.1	13.2	26.3 2/
Merchandise imports	3,263.9	14.1	10.7	15.7	7.7	9.5	-5.5	12.3	6.1	5.6	7.7
Food	367.4	9.6	7.7	39.6	-6.8	14.3	-5.0	4.7	2.7	3.3	3.0
Petroleum	383.1	13.8	15.1	9.7	13.5	4.9	-34.7	66.2	11.3	8.2	21.7 2/
Machinery and equipment	846.5	5.5	15.4	-2.6	-4.4	4.1	-2.4	-3.6	-0.7	0.0	0.0
Others	1,666.9	21.6	6.5	24.9	15.3	0.0	5.6	8.2	7.8	7.0	5.6
<b>Price Index</b>											
<b>PRICES</b>											
Export price index		54.8	58.7	75.5	100.0	117.4	122.9	122.7	131.9	141.9	151.9
Import price index		72.6	75.6	85.3	100.0	114.4	121.2	131.8	143.3	155.5	167.4
Terms of trade index		75.5	76.6	88.5	100.0	102.6	101.4	93.1	92.0	91.3	90.7

	Composition of Merchandise Trade (%) (at current prices)						Average Annual Increase (%) (at constant prices)			
	1971	1976	1981	1982	1986	1991	1971-76	1976-81	1981-86	1986-91
	Exports	100.0	100.0	100.0	100.0	100.0	100.0	4.1	8.6	10.2
Crude oil	24.5	40.9	51.5	43.6	34.1	28.7	4.6	5.8	1.2	-0.1
Other primary	19.2	13.4	5.0	4.9	4.4	4.3	-5.4	-1.9	12.7	3.1
Manufactures	56.3	45.7	43.5	51.5	61.5	67.0	6.4	14.1	17.6	8.1
Imports	100.0	100.0	100.0	100.0	100.0	100.0	13.1	11.5	5.5	3.9
Food	21.2	12.3	11.2	11.3	10.1	6.3	0.6	11.9	2.6	-5.3
Petroleum	3.9	11.1	19.0	11.7	22.7	30.6	29.2	10.9	9.7	8.6
Machinery and Equipment	30.1	31.9	25.2	25.9	17.4	12.8	13.5	8.7	-1.2	-1.0
Others	44.8	44.7	44.6	51.1	49.8	50.3	10.6	13.5	7.6	4.8

DIRECTION OF TRADE	Share of Trade with Industrial Countries (%)			Share of Trade with Developing Countries (%)			Share of Trade with Oil Exporters (%)			Share of Trade with Centrally Planned Countries (%)		
	1970	1975	1980	1970	1975	1980	1970	1975	1980	1970	1975	1980
	Exports	70.8	60.1	68.7	4.9	21.7	25.4	13.9	11.1	4.8	9.4	6.1
Imports	85.9	79.5	81.8	7.1	10.9	7.7	0.7	6.3	7.5	6.3	3.1	3.6

1/ Constant price data at 1980 prices.

2/ Increase in refining capacity.

**BALANCE OF PAYMENTS, EXTERNAL CAPITAL AND DEBT**  
(million US\$ at current prices)Population: 6.5 million (mid-1981)  
GNP per Capita: \$1,420 (1981)

	Actual 1/						Projected			
	1971	1976	1979	1980	1981	1982	1983	1984	1986	1991
<b>BALANCE OF PAYMENTS</b>										
Net exports of goods & services	-57.4	-417.0	-356.0	-472.6	-684.6	-718.4	-787.9	-938.9	-1,028.5	-1,350.0
Exports of goods & services	469.4	1,479.5	3,137.5	3,912.3	3,948.4	3,338.9	3,801.8	4,352.6	6,023.9	11,107.4
Imports of goods & services	526.8	1,896.5	3,493.5	4,384.9	4,633.0	4,057.3	4,589.7	5,291.5	7,052.4	12,242.4
Net transfers 2/	52.0	52.7	61.0	100.0	38.5	25.4	32.4	32.4	24.3	24.0
Current account balance	-5.4	-364.3	-295.0	-372.6	-646.1	-693.0	-755.5	-906.5	-1,004.2	-1,111.0
Direct private investment	27.6	102.6	50.9	236.0	367.2	338.6	300.0	350.0	400.0	500.0
MLT loans (net)	55.3	167.8	479.3	322.8	282.7	354.4	545.7	669.3	773.4	871.0
Official	59.2	130.4	190.6	272.7	249.8	351.8	449.6	422.6	465.1	659.6
Private	-3.9	37.4	288.7	50.1	32.9	2.6	96.1	246.7	308.3	211.4
Other capital	13.7	55.2	-111.3	121.3	101.9	-	-	-	-	-
Change in reserves	-91.2	38.7	-123.9	-64.9	-105.7	-	-90.2	-112.8	-169.2	-760.0
International reserves	114.8	304.5	415.5	455.7	458.2	478.5	568.7	681.5	997.3	2,066.5
Reserves as months of imports	2.6	2.2	1.6	1.4	1.4	1.4	1.5	1.5	1.7	2.0

	Actual 1/					
	1971	1976	1979	1980	1981	1982
<b>GROSS DISBURSEMENTS</b>						
Official grants	35.5	50.2	50.7	41.5	20.3	25.4
Gross disbursements of MLT loans	105.2	229.5	628.8	533.9	585.1	699.7
Concessional	61.0	104.0	139.5	216.3	236.3	329.2
Bilateral	52.8	95.1	138.7	196.2	230.3	230.0
IDA	4.8	8.9	0.2	1.0	1.1	0.5
Other multilateral	3.4	0.0	0.6	19.1	4.9	98.7
Non-concessional	44.2	125.5	489.3	317.6	348.8	370.5
Private	28.8	60.1	370.7	188.4	199.8	226.9
Official export credits	3.2	9.9	49.5	55.5	47.0	37.4
IBRD	12.2	25.3	55.4	51.1	69.4	83.4
Other multilateral	-	30.2	13.7	22.6	32.6	22.8

<b>EXTERNAL DEBT</b>						
Debt Outstanding and Disbursed	619.5	1,166.5	2,981.8	3,172.5	3,171.0	3,525.3
Official	440.0	971.9	1,823.0	2,017.6	2,133.9	2,485.6
IBRD	39.3	127.9	232.0	269.0	319.5	379.8
IDA	21.1	64.1	67.3	67.9	67.5	67.4
Other	379.6	779.9	1,523.7	1,680.7	1,746.9	2,038.4
Private	179.5	194.6	1,158.8	1,154.9	1,037.1	1,039.7
Undisbursed debt	352.5	1,110.8	1,738.2	1,803.5	1,673.5	1,698.0

<b>DEBT SERVICE</b>						
Total debt service payments	69.8	98.6	311.8	426.6	506.8	553.4
Interest	19.9	36.9	162.2	215.5	204.4	208.0
Payments as % exports	14.9	6.7	9.9	10.9	12.8	16.6
Payments as % GNP	4.1	2.2	4.3	4.9	6.1	7.0
Average interest rate of new Loans (%)	4.9	5.4	7.1	6.9	8.3	6.8
Official	4.6	4.3	5.6	5.9	6.9	-
Private	6.1	7.9	9.8	10.5	12.7	-
Average maturity of new Loans (years)	23.3	16.6	15.8	17.2	15.4	16.9
Official	26.2	20.4	19.4	19.4	18.2	-
Private	13.8	8.6	9.2	9.2	5.8	-

**As % of Debt Outstanding  
at End of Most Recent  
Year (1981)****DEBT STRUCTURE**

Maturity structure of debt outstanding (%)	
Amortization due within 5 years	37.7
Amortization due within 10 years	65.6
Interest structure of debt outstanding (%)	
Interest due within first year	4.3

1/ Preliminary estimates for 1982.

2/ Including grants.



THE STATUS OF BANK GROUP OPERATIONS IN TUNISIA

A. STATEMENT OF BANK LOANS AND IDA CREDITS (As of March 31, 1983) a/

Loan or Credit Number	Year	Borrower	Purpose	US\$ Million Amount (less Cancellation)		
				Bank	IDA d/	Undisbursed
Thirty-two Loans and Credits Fully Disbursed				277.85	69.96	
1068	1974	Republic of Tunisia	Irrigation Rehabilitation	12.20		0.94
1155	1975	Republic of Tunisia	Third Education	8.60		3.62
1188	1975	Republic of Tunisia	Second Highways	28.00		12.55
1340	1976	Banque Nationale de Tunisie	Second Agricultural Credit	12.00		0.46
1431	1977	Republic of Tunisia	Irrigation Development	42.00		10.69
1445	1977	SONEDE	Fourth Water Supply	21.00		4.00
1504	1977	BDET	Development Finance Company	30.00		2.65
1505	1977	Republic of Tunisia	Small-Scale Industry Development	5.00		1.41
1601	1978	Republic of Tunisia	Rural Roads (Third Highways)	32.00		21.41
1675	1979	Republic of Tunisia	Second Urban Sewerage	26.50		18.39
1702	1979	SONEDE	Fifth Water Supply	25.00		2.59
1705	1979	Republic of Tunisia	Second Urban Development	19.00		15.20
1746	1979	Republic of Tunisia	Second Fisheries	28.50		22.86
1796	1980	Republic of Tunisia	Southern Irrigation	25.00		22.56
1797	1980	Office des Ports Nationaux	Third Port	42.50		14.49
1841	1980	Republic of Tunisia	Fourth Highways	36.50		32.41
1864	1980	Société Tunisienne de l'Electricité et du Gaz	Second Natural Gas Pipeline	37.00		23.51
1885	1980	Banque Nationale de Tunisie	Third Agricultural Credit	30.00		25.28
1961	1981	Republic of Tunisia	Fourth Education	26.00		25.73
1969	1981	Republic of Tunisia	Small-Scale Industry Development	30.00		29.92
1997	1981	Republic of Tunisia	Northwest Rural Development	24.00		21.46
2003	1981	Société Tunisienne de l'Electricité et du Gaz	Third Power	41.50		40.33
2005	1981	Republic of Tunisia	Health and Population	12.50		12.48
2012	1981	Republic of Tunisia	Textile Rehabilitation	18.60		12.43
2052	1981	Republic of Tunisia	Grain Distribution and Storage	42.00		41.76
2108	1982	Republic of Tunisia	Fifth Highway (Rural Roads)	35.50		35.50
2113	1982	BDET	Electrical and Mechanical Industries	30.50		30.50
2134	1982	SONEDE	Sixth Water Supply	30.50		24.96
2157	1982	Republic of Tunisia	Irrigation Development	22.00		21.67
2197	1982	Republic of Tunisia	Technical Assistance	4.50		4.50
2223 b/	1983	Republic of Tunisia	Urban Development III	25.00		25.00
2230 b/	1983	Republic of Tunisia	Education V	27.00		27.00
2234 c/	1983	Republic of Tunisia	Central Tunisia Irrigation	16.50		16.50
TOTAL				1,124.75	69.96	604.31
Of which has been repaid				124.02	7.41	
Total now outstanding				1000.73	62.55	
Amount Sold						14.33
of which has been repaid						14.23
Total now held by Bank and IDA d/				1000.83	62.55	
Total Undisbursed				604.31		604.31

a/ Does not include the Third Urban Sewerage Project, Loan 2255-TUN of \$34 million, the Sfax Flood Protection Project, Loan 2289-TUN of \$25 million and the SOFOMECA Foundry Modernization and Rehabilitation Project, Loan 2301-TUN of \$16.4 million, all signed on June 16, 1983, and not yet effective.

b/ Signed on January 11, 1983; not yet effective.

c/ Signed on February 28, 1983; not yet effective

d/ Prior to exchange rate adjustment

STATEMENT OF IFC INVESTMENTS IN TUNISIA (as of March 31, 1983)

<u>Year</u>	<u>Obligator</u>	<u>Type of Business</u>	<u>Amount in US\$ Million</u>		
			<u>Loan</u>	<u>Equity</u>	<u>Total</u>
1962	NPK Engrais	Fertilizers	2.0	1.5	3.5
1966	Société Nat. d'Invest. (now BDET)	Dev. Finance Co.		0.6	0.6
1969	COFIT (Tourism)	Dev. Finance Co.	8.0	2.2	10.2
1970	Société Nat. d'Invest. (now BDET)	Dev. Finance Co.		0.6	0.6
1973	Société Touristique et Hotelière RYM SA	Tourism	1.6	0.3	1.9
1975	Société d'Etudes et de Développement de Sousse-Nord	Tourism	2.5	0.6	3.1
1974	Industries Chimiques du Fluor	Chemicals		0.6	0.6
1978	BDET	Dev. Finance Co.	—	<u>1.2</u>	<u>1.2</u>
	<b>Total Gross Commitments</b>		<b>14.1</b>	<b>7.6</b>	<b>21.7</b>
	<b>Less Cancellations, Terminations, Repayments, and Sales</b>		<b><u>10.0</u></b>	<b><u>1.8</u></b>	<b><u>11.8</u></b>
	<b>Total Commitments now held by IFC</b>		<b>4.1</b>	<b>5.8</b>	<b>9.9</b>
	<b>Total Undisbursed</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

C. PROJECTS IN EXECUTION 1/

Ln. 1068: Irrigation Rehabilitation Project; US\$12.2 million loan of December 31, 1974; Date of Effectiveness: September 18, 1975; Closing Date: December 31, 1982.

Irrigation rehabilitation works in the Medjerda area are complete. However, farmers are not fully using the available water resources due to limited distribution hours, and unwillingness of farmers to irrigate at night. In the Nebhana area, rehabilitation investments have been satisfactorily completed. Credit demand for basins and storage facilities was less than originally expected, and a grading and packing station was not built because of lack of capacity on the part of the cooperative which was to construct and manage it. Production of off-season vegetables under greenhouses is encouraging. The undisbursed balance of \$560,611.61 was cancelled on June 30, 1983.

Ln. 1155: Third Education Project; US\$8.9 million loan of August 13, 1975; Date of Effectiveness: March 1, 1976; Closing Date: March 31, 1983.

Implementation of this project was delayed following a change in education policy and priorities in Tunisia. The project was subsequently amended to reduce the number of manual work training (ITM) centers to be equipped under the project, expand the teachers' training component for ITM, and increase technical assistance. As a result, the Bank loan was reduced by \$0.3 million to \$8.6 million, covering the full foreign exchange cost of the amended project. Disbursements are in progress for commitments made prior to the Closing Date. An undisbursed balance is expected to be cancelled.

Ln. 1188: Second Highways Project; US\$28 million loan of January 26, 1976; Date of Effectiveness: June 16, 1976; Closing Date: September 30, 1983.

Civil works on the Tunis-Bizerte highway and on the Hammamet-Korba road in Nabeul have been completed. The remaining construction works on other roads are well-advanced. The Sfax by-pass under Lot 8 on which there is a difficult problem of expropriation will not be undertaken as part of the project. All studies under the project have been completed and their results are being implemented. A loan balance, due to appreciation of the dollar since loan approval, may be cancelled.

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1/ These notes are designed to inform the Executive Directors regarding the progress of projects in execution, and in particular to report any problems which are being encountered, and the action being taken to remedy them. They should be read in this sense, and with the understanding that they do not purport to present a balanced evaluation of strengths and weaknesses in project execution.

Ln. 1340:            Second Agricultural Credit Project; US\$12 million loan of December 17, 1976; Date of Effectiveness: July 19, 1977; Closing Date: December 31, 1982.

Subloans to commercial farmers, agro-industrial investors and small and medium farmers were fully used. Project implementation for the establishment of date palm plantations has improved and is now progressing satisfactorily. However, due to start-up delays, works will not be completed before Spring 1984. Some investments will have to be financed under the Third Credit Project (1885-TUN). An undisbursed balance of \$98,640.42 was cancelled on June 30, 1983.

Ln. 1431:            Sidi Salem Multipurpose Project; US\$42 million loan of July 5, 1977; Date of Effectiveness: July 31, 1978; Closing Date: June 30, 1984.

For the project as a whole, progress in implementation continues to be satisfactory. The land reform and consolidation program is smoothly underway. The Sidi Salem dam is completed and in operation. The first filling-up of the reservoir has progressed well. The power plant is expected to be in operation shortly. After some initial delays, construction of the Medjerda-Cap Bon interconnection canal is proceeding more rapidly and completion by the end of 1983 seems possible. The reinforcement in the water supply of the SONEDE grid during the peak consumption period (June/July) would be possible now that works on the 1,400 ha Testour perimeter are ready, and irrigation is scheduled to start during the current cropping season. Works on the Medjez el Bab perimeter of 3,800 ha are now progressing satisfactorily, and are expected to be completed by the end of 1983. Contracts for works for the Safeguard of Citrus Plantations subproject in the Cap Bon area have all been awarded; the anticipated completion date is end-1983. This subproject is experiencing important cost overruns, and discussions are underway with the Government to resolve this problem.

Ln. 1445:            Fourth Water Supply Project; US\$21 million loan of July 5, 1977; Date of Effectiveness: January 30, 1978; Closing Date: December 31, 1983.

Most of the project facilities are now completed and in operation. Disbursements including release of retention monies to contractors will be completed in early 1984.

Ln. 1504/1505: Industrial Finance Project consisting of a Seventh Loan to Banque de Développement Economique de Tunisie (BDET) and a Pilot Project for assistance to SSI; Loans of \$30.0 million to BDET and of \$5.0 million to the Government of January 25, 1978; Date of Effectiveness: October 13, 1978; Closing Date: June 30, 1983.

Both loans are fully committed. Under the project, BDET is giving priority in its financing to projects which are located in the less developed regions, sponsored by new entrepreneurs, characterized by high labor intensity or export-orientation. Under the Small Scale Industries (SSI) pilot project, the commercial banks' initial reluctance to utilize Bank funds for SSI financing has subsided. Considerable progress has been made by the Tunisian authorities toward setting up a comprehensive program delivered by Tunisian and foreign technical assistance experts, specifically catering to the needs of SSI. A new project approved by the Bank in May 1981 supports this program (see below Ln. 1969).

Ln. 1601: Rural Roads Project; US\$32.0 million loan of July 24, 1978; Date of Effectiveness: April 30, 1979; Closing Date: June 30, 1984.

Road construction is now underway in all the eleven provinces. The complementary agricultural component, after an initial delay, is now progressing satisfactorily, with the exception of the use of credit for agro-industries which has generated little interest.

Ln. 1675: Second Urban Sewerage Project; US\$26.5 million loan of April 13, 1979; Date of Effectiveness: August 31, 1979; Closing Date: December 31, 1984.

Works under construction are progressing satisfactorily, although three stormwater collectors need to be retendered as bids were considerably higher than anticipated and additional local funds had to be allocated. Thirty-one contracts have been awarded for a total dollar equivalent of \$50.2 million. Bank's commitments amount to \$20.8 million. Tenders for civil works of the Choutrana Treatment Plant are being evaluated. This component would be about one and one-half years behind schedule.

Ln. 1702: Fifth Water Supply Project; US\$25.0 million loan of May 31, 1979; Date of Effectiveness: October 19, 1979; Closing Date: December 31, 1983.

The execution of the project is progressing well and should be completed by mid-1983. Most of the project facilities are already in operation.

Ln. 1705:            Second Urban Development Project; US\$19.0 million loan of May 31, 1979; Date of Effectiveness: December 1, 1980; Closing Date: December 31, 1983.

Responsibility for project implementation was transferred from the Ministry of Interior to the Ministry of Housing following the creation of the latter in 1981. About 60% of the civil works are now completed. They are advancing well in Sfax but less satisfactorily in Tunis due to managerial problems and budgetary constraints. Difficulties related to site acquisition cost overruns are being resolved. Responsibility for the implementation of the solid waste component was transferred recently from the District of Tunis to the National Sewerage Authority (ONAS). The technical assistance and studies are advancing well. A two-year extension of the Closing Date is envisaged to allow the time for settlement of management and budgetary issues, and full implementation of the Tunis component.

Ln. 1746:            Second Fisheries Project; US\$28.5 million loan of July 20, 1979; Date of Effectiveness: May 14, 1980; Closing Date: June 30, 1985.

Port infrastructure construction is well underway at all sites and general progress is satisfactory. Procurement of boat hulls is underway although more than two years behind schedule mainly due to management problems. Contracts for the purchase of boat engines have been signed and cold storage and ice making plants for existing ports have been procured. Civil works superstructure at three new ports is underway.

Ln. 1796:            Southern Irrigation Project; US\$25.0 million loan of February 8, 1980; Date of Effectiveness: September 30, 1980; Closing Date: June 30, 1986.

After a slow start in 1980, the project has gradually developed momentum and is now progressing satisfactorily. However, delays already experienced will set back the completion date of civil works from 1983 to 1985. Work is underway on 13 of the 16 project perimeters. The other three are expected to start in 1983. The agricultural impact of rehabilitation is already noticeable.

Ln. 1797:            Third Port Project; US\$42.5 million loan of February 8, 1980; Date of Effectiveness: June 25, 1980; Closing Date: June 30, 1985.

Civil works at la Goulette are progressing satisfactorily. About two-thirds of the cellular caissons for the quay have been precast and positioning is underway. Passenger terminal construction is behind schedule, but the project's completion date of June 30, 1984 is unaltered. A request to finance rehabilitation of the port access road from the loan was received by the Bank and is currently being reviewed. Civil works at

Sfax are near completion, with some dredging left in the RoRo berth area, and further works to be done to modernize the salt export berth and to build the new access road. Execution of the contract for construction of buildings and utilities incurred some delays. Full completion of the contract is due by September 1983. Supervision is satisfactory in both ports. Implementation of training programs for port personnel has started, technical assistance being provided by UNCTAD. Execution of the study on workshops reorganization and maintenance procedures started in January 1983.

Ln. 1841:     Fourth Highway Project; US\$36.5 million loan of May 22, 1980;  
Date of Effectiveness: November 21, 1980; Closing Date:  
September 30, 1984.

The rehabilitation program is progressing well. The 1982 action plan for maintenance is being implemented, and tenders are being analysed for civil works for the 1983 program. Road maintenance equipment has been delivered.

Ln. 1864:     Second Natural Gas Pipeline Project; US\$37 million loan of  
October 22, 1980 - amended on July 15, 1981; Date of  
Effectiveness: December 9, 1981; Closing Date: December 31,  
1985.

The original project scope was modified because of uncertainties related to the purchase of gas from Algeria; the project has been redesigned to utilize royalty gas from the Algeria/Italy intercontinental pipeline as a substitute for premium liquid fuel products. The pipeline distribution system to be constructed under the project is expected to be completed by mid-1983. The conversion to gas program of the consumers is progressing, albeit with some delays. Agreement between Algeria and Italy on the gas price was reached in early 1983 and gas supplies are expected to start in the second half of 1983.

Ln. 1885:     Third Agricultural Credit Project; US\$30.0 million loan of  
August 6, 1980; Date of Effectiveness: June 24, 1981;  
Closing Date: December 31, 1983.

The project is financing part of the agricultural three-year lending program of BNT (Banque Nationale de Tunisie) for medium and long-term credit to small and medium farmers, production and service cooperatives, commercial farmers and agro-industries. Disbursements have started for production cooperatives, commercial farmers and agro-industries. However, because Government funds have also been available for similar purposes to farmers under other programs which, unlike the Bank-financed program, offer subsidies, disbursements are below the expected level. Also, little progress has been achieved in resolving priority credit problems.

Ln. 1961:            Fourth Education Project; US\$26 million loan of May 18, 1981;  
Date of Effectiveness: November 18, 1981; Closing Date:  
December 31, 1986.

The implementation of this project, which is devoted to skilled worker and apprentice training, is proceeding satisfactorily. The staff recruitment and training plan progressed slowly but improvement is underway in connection with the reorganization of the project's executing agency. Construction lags behind appraisal estimates with delays varying from six (Phase II) to nine months (Phase III). However, these delays are being reduced as the equipment contracts have been awarded for Phase I and tenders for Phase II are scheduled for August 1983.

Ln. 1969:            Small Scale Industry Development Project; US\$30.0 million  
loan of May 15, 1981; Date of Effectiveness: July 21,  
1982; Closing Date: December 31, 1986.

The project supports the Government's comprehensive assistance program for small-scale industries through financial and technical assistance. \$29.35 million is to be administered by the Central Bank of Tunisia and made available to small entrepreneurs through participating banks. The remainder of the loan (\$0.65 million) would strengthen the appraisal and SSI technical assistance capacity of the Investment Promotion Agency responsible for screening eligible subprojects. \$1.6 million has been committed to date.

Ln. 1997:            Northwest Rural Development Project; US\$24.0 million loan of  
July 15, 1981; Date of Effectiveness: March 23, 1982; Closing  
Date: September 30, 1987.

The project is designed to help finance a five-year time slice of the Government's 15 year development program for the Northwest Region through the establishment of institutions which could implement the program, and the development of extension, research, credit, and livestock services. The project would also start up specific agricultural, soil conservation and forestry activities, together with productive infrastructure works. Project implementation is progressing satisfactorily.

Ln. 2003:            Third Power Project; US\$41.5 million loan of July 15, 1981;  
Date of Effectiveness: April 21, 1982; Closing Date: December  
31, 1985.

The project will assist Tunisia in implementing the first three years of a five-year program for the development of rural electrification, and in rehabilitating the urban distribution systems by connecting to the national network about 35,000 new customers living in about 650 villages situated in 15 Governorates, and improving the supply of electricity in about 60 towns. Project implementation is progressing very well. However disbursements are behind appraisal estimates due to a revision in the procurement procedures which were not in compliance with Bank guidelines.



Ln. 2005:      Health and Population Project; US\$12.5 million loan of July 15, 1981; Date of Effectiveness: March 23, 1982; Closing Date: December 31, 1986.

The project is designed to support Government efforts to extend basic health care to the whole population by 1990, through the provision of better and more cost-effective health, family planning and nutrition services to lower income groups in eight selected Governorates. It would strengthen the Ministry of Public Health's management capacity, improve and expand the basic health care delivery system and health education programs, upgrade the training system, and train health personnel. All project activities are well coordinated and project implementation is progressing satisfactorily and according to schedule.

Ln. 2012:      Textile Rehabilitation Project; US\$18.6 million loan of October 27, 1981; Date of Effectiveness: May 7, 1982; Closing Date: December 31, 1984.

Equipment procured under bilateral financing as well as major productive machines financed under the Bank loan have recently been commissioned and are running on three shifts. Technical assistance to the SOGITEX group is progressing satisfactorily. Financial performance of the primary beneficiary of the Bank loan (SITEX) continues to be satisfactory.

Ln. 2052:      Grain Distribution and Storage Project; US\$42.0 million loan of October 27, 1981; Date of Effectiveness: April 2, 1982; Closing Date: December 31, 1986.

The project is designed to strengthen grain storage capacity; reduce congestion, handling costs, demurrage charges and grain losses at the main Tunisian seaports, and the cost of transport and handling of grain; strengthen the technical capacity and financial management of the Office of Cereals (OC); and lay the groundwork for further modernization of the system of collection, storage and transport of domestic grain. The invitation to bid for construction of silos has been delayed about a year and a half and has not yet been issued as a result of OC's difficulties in recruiting consulting engineers. This recruitment is now well underway. Procurement by SNCFT of rail hopper cars and materials for construction of silo railway sidings is underway. Consultants for technical assistance in management and finance have been recruited by OC.

Ln. 2108:      Fifth Highway Project; US\$ 35.5 million loan of May 14, 1982; Date of Effectiveness: April 21, 1983; Closing Date: December 31, 1987.

The project will help the Government continue its efforts to provide farmers with improved roads, support services, and farm credit. Some 1,200 kilometers on about 100 road sections throughout the country will be improved, 55 extension centers will be constructed and equipped, and

credit will be provided. Consultant services to assist the Highway Department and the Ministry of Agriculture will also be provided. The Project Coordinating Committee has been established.

Ln. 2113:            Electrical and Mechanical Industries Project; US\$ 30.5 million loan of May 14, 1982; Date of Effectiveness: December 2, 1982; Closing Date: December 31, 1987.

The Banque de Développement Economique de Tunisie (BDET) provides a \$28 million credit line for supporting priority electrical and mechanical industries and for general purpose lending to industry in Tunisia. The remainder of this loan is being used by the Tunisian Government to provide technical assistance in setting up a Technical Center for Mechanical Industries, and a National Institute of Standardization and Quality Control for manufacturing industries, and in conducting a study on effective protection.

Ln. 2134:            Sixth Water Supply Project; US\$ 30.5 million loan of May 14, 1982; Date of Effectiveness: October 20, 1982; Closing Date: December 31, 1986.

The project provides for the expansion and improvement of water supply systems in about 150 rural centers. It also includes the provision of credit facilities to help finance individual house connections and the installation of 80,000 meters for these connections. Seventeen subprojects that would be implemented in 37 rural centers and financed under the loan have already been selected by SONEDE and approved by the Bank. Civil works contracts for a total amount of \$4.2 million have been placed for ten of the subprojects; works on these contracts are underway. Bidding for the remaining subprojects and equipment is also underway. So far, credit facilities have been extended to 31,900 customers for a total amount of \$10.5 million.

Ln. 2157:            Medjerda/Nebhana Irrigation Development Project; US\$ 22.0 million loan of June 8, 1982; Date of Effectiveness: February 1, 1983; Closing Date: December 31, 1988.

The project will provide funds for a development project in which emphasis will be placed on improving irrigation works and marketing facilities in the regions of Medjerda near Tunis and Nebhana near Sousse. The implementing agencies, the Medjerda Valley Development Agency (OMVVM) and the Nebhana Development Agency (OMIVAN), expect to increase the production of vegetables, fruit, forage, industrial crops, livestock and milk. The project will also provide farm access roads, fruit and vegetable processing centers, cold stores and milk collection centers. The project has just started and the OMIVAN component is progressing well, although there are some delays in recruiting consultants. The OMVVM component has been slow in starting due to Government budget allocation difficulties.

Ln. 2197:      Technical Assistance Project; US\$ 4.5 million loan of October 29, 1982; Date of Effectiveness: May 5, 1983; Closing Date: December 31, 1986.

The project will provide technical assistance to the agriculture, industry and energy sectors through the provision of experts and training to (i) increase the number and improve the quality of investment projects; (ii) strengthen local project preparation capabilities; (iii) provide a sound empirical base for the formulation of sector-wide policies; and (iv) reinforce institution-building efforts. In spite of delays in loan effectiveness, implementation of the project has started with training for Tunisians in energy conservation and with the signing of the first consultant contracts for agricultural studies.

Ln. 2223:      Third Urban Development; US\$ 25.0 million Loan of January 11, 1983; Planned Date of Effectiveness: October 12, 1983; Closing Date: June 30, 1990.

The project consists of: (i) comprehensive upgrading in four settlements; (ii) a sites and services/housing credit scheme in three of these settlements; (iii) a pilot program of upgrading and reconstruction of the Hafsia neighborhood in the Medina of Tunis; and (iv) technical assistance for project implementation, institution building, and pre-investment studies. Of the five project sites, three are in Greater Tunis and two are in the Northwest region. The executing agency (ARRU) is now fully staffed to implement the project and some of the technical assistance experts in place.

Ln. 2230:      Fifth Education Project; US\$ 27 million Loan of January 11, 1983; Planned Date of Effectiveness: October 12, 1983; Closing Date: December 31, 1987.

The project will improve the planning and management capacity of the Ministry of Agriculture (MOA) and assist the Ministry of Education (MOE) in expanding its primary school teacher training capacity. It consists of: equipping and providing technical assistance to the Bureau of Agricultural Education Studies and Planning under MOA; providing didactic and farming equipment to six high level technical training institutions, four agricultural secondary schools, fifteen agricultural training centers; and providing equipment and technical assistance to the National Agricultural Instructor Training Center. It will also construct and equip four new primary school teacher training colleges under the MOE and finance studies on the country's needs for middle and higher-level technicians in view of designing appropriate methods and systems for their training. The project unit is already in place and equipment lists are in the final stage of preparation for ICB. Civil works for the MOA component are slightly ahead of schedule while drawings for the MOE as well as the studies components are slightly behind schedule.

Ln. 2234: Central Tunisia Irrigation Project; US\$ 16.5 million Loan of February 28, 1983; Planned Date of Effectiveness: September 28, 1983; Closing Date: June 30, 1990.

Central Tunisia, one of the least developed parts of the country, receives low and irregular rainfall. The project will focus on better use of existing resources and will create new public irrigation perimeters only where resources are under-exploited. About 1,600 of the project area's 5,900 shallow wells and 37 of the 51 public irrigation perimeters will be rehabilitated. Steps to initiate project activities are progressing well.

Ln. 2255: Third Urban Sewerage Project; US\$34.0 million Loan of June 16, 1983; Planned date of Effectiveness: October 17, 1983; Closing Date: December 31, 1989.

This project will help rehabilitate and expand the existing sewerage and stormwater systems, including the provision of sewerage treatment, in 30 urban centers. Construction is expected to start in autumn.

Ln. 2289: Sfax Flood Protection Project US\$25.0 million Loan of June 16, 1983; Planned Date of Effectiveness: October 17, 1983; Closing Date: June 30, 1989.

This project will rehabilitate and extend existing water courses, and provide a belt canal in Sfax and minor flood protection works in neighboring villages. Some of the most urgent repair works, which have to be completed before the 1983 rainy season, have already been started. Bid documents for other works should be ready by the end of 1983.

Ln. 2301: SOFOMECA Foundry Modernization and Rehabilitation Project; US\$16.8 million Loan of June 16, 1983; Planned Date of Effectiveness: October 17, 1983; Closing Date: December 31, 1986.

This project will help meet the growing demand for foundry products in Tunisia, and improve the quality and cost competitiveness of castings, thus creating also a sound basis for exports. It consists of (i) modernization of SOFOMECA's existing iron and steel foundry; (ii) installation of a new fully-equipped foundry for mechanical castings; and (iii) construction of a sand treatment plant to supply Tunisian foundries and other industrial users with high-quality sand. Project implementation has started with the signing of the first equipment contracts for the mechanization component. The technical specifications for the new foundry and sand plant are under preparation.

TUNISIA

MINING TECHNICAL ASSISTANCE PROJECT

Supplementary Project Data Sheet

Section I: Timetable of key events

- (a) Time taken by the country to prepare the project: 10 months (February - December 1982)
- (b) The agencies which prepared the project: Government, CPG, ONM and SDICS
- (c) Project first identified by the Bank: February 1982
- (d) Date of Bank appraisal missions: December 1982 (phosphate and mining policy) and February 1983 (potash)
- (e) Negotiations: July 8 - 15, 1983
- (f) Planned date of loan effectiveness: December 1983

Section II: Special Bank Implementation Actions

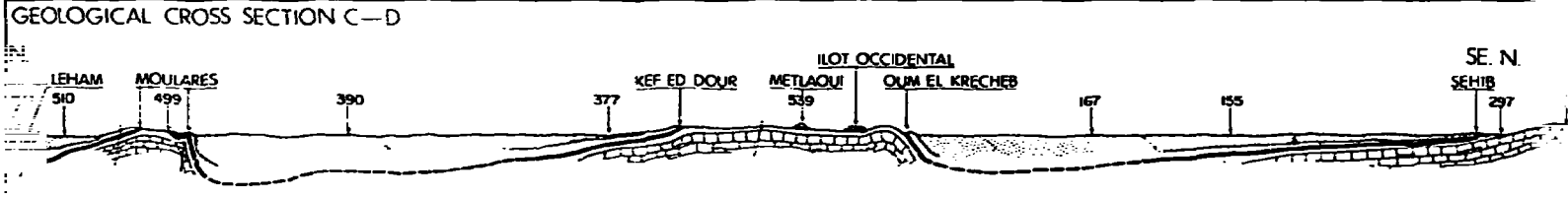
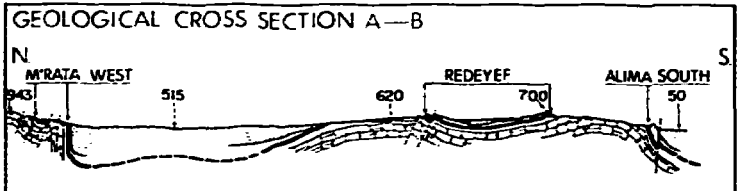
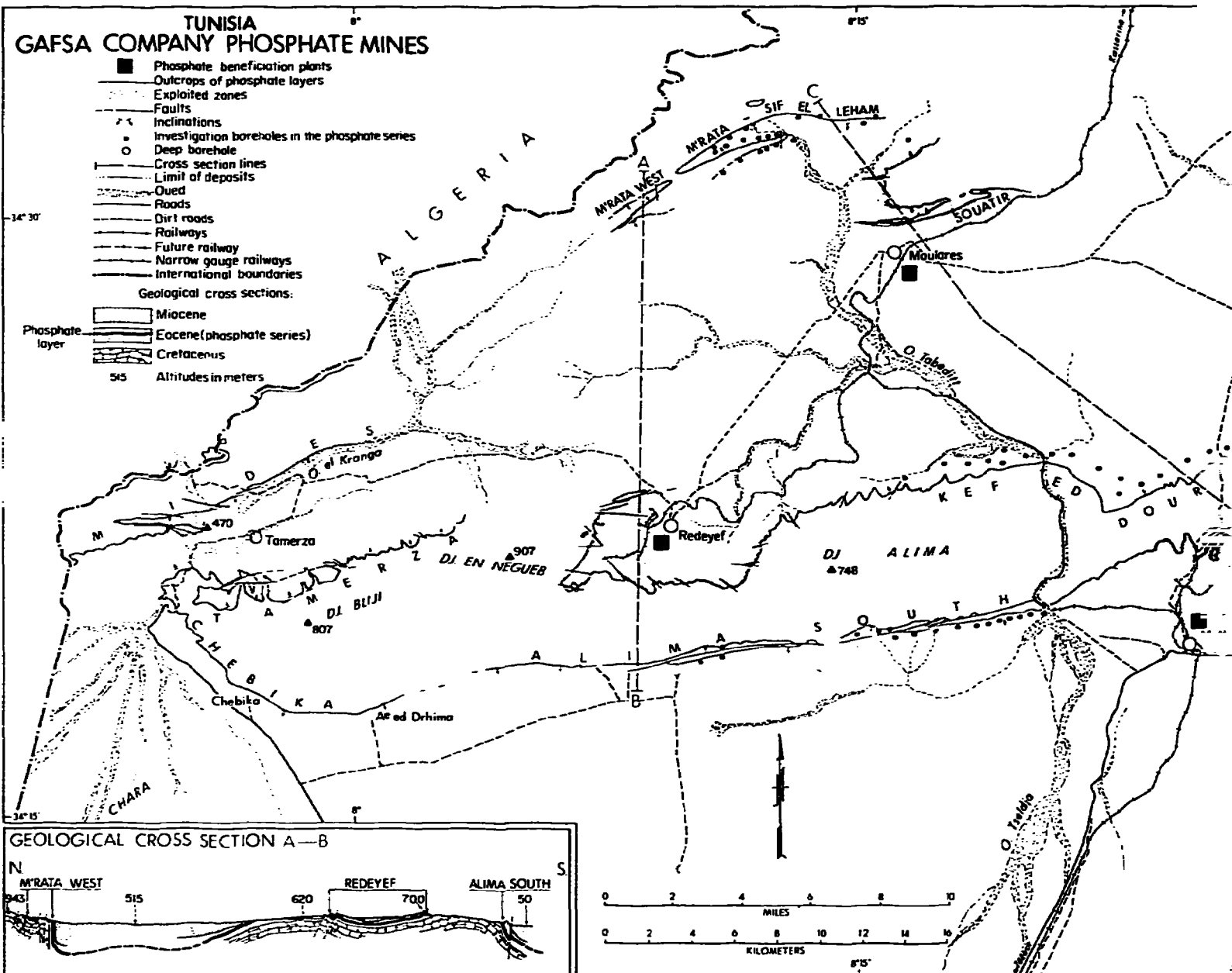
None

Section III: Special conditions

- 1. Special condition of effectiveness  
Effectiveness of subsidiary loan agreement between Government and CPG (para. 55).
- 2. Special conditions of disbursement
  - (a) Bank approval to start detailed feasibility study on potash project (para. 50);
  - (b) Assignment by DMG and ONM respectively of coordinator and project manager for mining policy study (para. 53).
- 3. Other special conditions
  - (a) CPG to achieve agreed performance indicators and targets (paras. 47 and 58);
  - (b) CPG to maintain as from December 31, 1987, a debt/equity ratio of 60:40 and as from December 31, 1986, a current ratio of 1.2; these replace the debt/equity and current ratio covenants under the previous Loan Agreement with CPG (para. 48); and
  - (c) CPG to obtain Bank approval for investments exceeding \$20 million in any one fiscal year during project implementation; this replaces the investment limitation covenant under the previous Loan Agreement with CPG (para. 48).

# TUNISIA GAFSA COMPANY PHOSPHATE MINES

- Phosphate beneficiation plants
  - Outcrops of phosphate layers
  - Exploited zones
  - - - Faults
  - / - \ Inclinations
  - Investigation boreholes in the phosphate series
  - Deep borehole
  - - - Cross section lines
  - - - Limit of deposits
  - - - Qued
  - - - Roads
  - - - Dirt roads
  - - - Railways
  - - - Future railway
  - - - Narrow gauge railways
  - - - International boundaries
- Geological cross sections:
- ▭ Miocene
  - ▭ Eocene(phosphate series)
  - ▭ Cretaceous
- 515 Altitudes in meters





# TUNISIA MINING TECHNICAL ASSISTANCE PROJECT MINING AND HEAVY INDUSTRIES

