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Report No. 656a-IS

Appraisal of an Industrial Development Project in Israel

May 7, ~~1974~~ 1975

Industrial Credits and Development Finance Companies Division
Regional Projects Department
Europe, Middle East, and North Africa Region

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International Development Association

CURRENCY EQUIVALENTS

Prior to November 10, 1974

US $1.00	=	IL 4.20
IL 1	=	US$ 0.24

After November 10, 1974

US $ 1.00	=	IL 6.00
IL 1	=	US $ 0.17

LIST OF ACRONYMS AND ABBREVIATIONS

IDBI	Industrial Development Bank of Israel Ltd.
OCS	Office of the Chief Scientist
IFC	Industrial Finance Corporation Limited
Histadrut	Federation of Labor Unions
GTEI	General Telephone and Electronics International, Inc.

GOVERNMENT OF ISRAEL

FISCAL YEAR

April 1 to March 31

APPRAISAL OF

AN INDUSTRIAL DEVELOPMENT PROJECT IN ISRAEL

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The present report is based on the findings of an appraisal mission to Israel in October-November 1974, composed of Messrs. George C. Maniatis, James L. Theodores, Henry B. Thomas, H.K. Work (R&D consultant) and J.C. Jones (consultant on technical training). Mr. Charles Weiss collaborated in the appraisal and selection of the R&D subprojects.

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BASIC DATA

A. INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Year of Establishment: 1957

Ownership (as of October 31, 1974)	IL (000)	Percent
Ordinary A (voting) Shares		
Government	3,925	26.0
Private domestic	9,775	64.7
Foreign	1,400	9.3
Sub-total	15,100	100.0
Non-Voting Shares		
Government	189,718	52.7
Private domestic	2,106	0.6
Foreign	79,839	22.2
Mixed 1/	88,279	24.5
Sub-total	359,939	100.0
Total	375,039	

Resources Position (as of September 30, 1973)	(IL million)	
Domestic Currency		
Equity	503.9	
Perpetual deposit	467.0	
Long-term debt	323.0	1,293.9
Foreign Currency		
IBRD loans ($38.8 million)	162.5	
Capital notes	71.4	
Other long-term debts	832.5	1,066.4
Total resources		2,360.3
Loans outstanding	2,009.2	
Equity investments outstanding	4.5	
Subsidiaries	15.1	2,028.8
Resources available for disbursement		331.5

1/ Entities owned jointly by domestic and foreign shareholders.

	1971	1972	1973	Jan. - Sept. 1974
		(IL Millions)		
Loan Commitments	267.8	366.1	401.9	443.9
Loan Disbursements	331.2	431.0	401.3	310.0
Earnings Record		(percentages)		
Profits before tax to average total assets	4.8	4.2	3.9	4.0 1/
Profits before tax to average equity	14.5	15.7	17.0	18.6
Net profit to year-end share capital	8.2	9.0	9.7	10.5
Net profit to adjusted year-end share capital 2/	13.1	14.8	16.1	n.a.
Gross dividends paid to year-end share capital	7.1	8.0	8.0	n.a.

Financial Position (as of June 30, 1974)

Total debt/equity ratio (agreed maximum 3:1)	3:1
Reserves and provisions to loan and investment portfolio	7.0%

Interest Rates and Charges (as of September 30, 1974)

Interest rates on loans	Variable, ranging from 8 to 15% p.a.
Commitment fee	None
Commission charge	0.6 to 1% on amount of each loan
Guarantee fee	2% p.a.

B. BANK LOANS TO IDBI

Status as of March 31, 1975 (US$ Million)

Loan No.	Date Signed	Rate of Exchange	Net Amount	Committed	Disbursed	Outstanding
424	9/16/65	5½	20.0	fully	20.0	5.9
519	11/15/67	var.	15.0	fully	15.0	6.1
689	6/15/70	7	25.0	fully	22.4	21.0
			60.0		57.4	33.0

1/ On annual basis

2/ Excludes Government-owned Ordinary B and Preference A shares and dividends thereon.

APPRAISAL OF

AN INDUSTRIAL DEVELOPMENT PROJECT IN ISRAEL

SUMMARY AND CONCLUSIONS

i. This report appraises a composite industrial development project involving three complementary components: (a) a (fourth) loan for the Industrial Development Bank of Israel (IDBI); (b) industrial research and development (R&D); and (c) vocational/technical training. The Bank loan, in the amount of US$35 million, will be made to the Government for 15 years. The Government will on-lend US$25 million to IDBI, while the R&D and vocational/technical training components will each be funded with US$5 million.

The IDBI Component

ii. Since its establishment in 1957, IDBI has shown continuous growth and, at September 30, 1974, its total assets stood at IL 2.4 billion. IDBI has an experienced management team and a competent staff, is efficiently run and has a notable record of performance in terms of both financial assistance to industry and overall development impact. IDBI continues to be the largest development finance institution engaged in term lending in Israel and an important instrument for the implementation of the Government's industrial policy. IDBI stresses the promotion of technologically sophisticated and export-oriented industries, and the location of industry in less developed regions. During 1969-73, IDBI contributed 30% of the total financing for industrial investment. Approximately 50% of IDBI-financed projects are located in the less developed areas, while 40% by amount of loans approved by IDBI during 1969-74 were allocated to science-based industries. IDBI has continued to succeed in raising new capital abroad. At home, however, untoward Government policies have limited considerably the scope of IDBI's resource mobilization effort.

iii. IDBI's loan approvals have increased in terms of amounts during 1968-74 at 30% per annum. IDBI's portfolio is diversified and sound. Arrears are well within acceptable limits and provisions for losses adequate. Earnings have shown steady growth and have represented a return in recent years of 15% to 16% on non-Government held share capital. IDBI's satisfactory appraisal/supervision work and continuing good record of operations warrants the raising of its debt/equity ratio from the present level of 3:1 to 5:1. Similarly, the free limit under the proposed loan should be raised from US$750,000 to US$1 million.

iv. IDBI's business prospects appear good. The Government will continue to lay heavy stress on industry to improve export earnings, to generate employment opportunities, and to develop the more backward regions. It can therefore be reasonably expected that a relatively high level of industrial investment will be maintained in the next several years, despite the enunciated austerity program. IDBI forecasts commitments of IL 8.4 billion during 1975-79 and of IL 2.8 billion over the two-year period July 1975-June 1977, based on realistic growth rates of industrial investment and the size of its pipeline. About half of the projected commitments of IL 2.8 billion

will be in local currency and will be covered by internally generated funds, debentures, and loans or other transfers from the Government, with the latter covering any shortfall. Of the remaining IL 1.4 billion, or some US$240 million, about half will be covered from existing lines of credit or new loans already identified and at various stages of negotiation. The rest will be covered by as yet unidentified sources. The proposed Bank funding of US$25 million, to be repaid over 15 years including a grace period of about 2 years, would help to fill part of that gap (or about 10% of the total foreign exchange gap). Perforce IDBI will have to continue, and to further intensify, its resource mobilization effort abroad.

v. Bank funds will support projects in the less developed regions of the country as well as export-oriented projects regardless of their location, in consonance with the Government's development objectives. Furthermore, a good part of these projects would be in industries employing sophisticated technologies, which the Government is eager to promote. IDBI will on-lend at 10-11%, on average.

The R&D Component

vi. R&D is a key element in Israel's strategy of promoting export-oriented industries based on sophisticated product design and production techniques. This strategy requires a high-level research capability closely integrated with sophisticated marketing and commercial skills at the enterprise level. It is based on the conviction in Israel that continuing reliance on foreign investment and licensing to acquire technology and know-how does not generally provide a sufficient competitive edge in export markets, and is intended to take advantage of one of Israel's major resources: its wealth of technical talent.

vii. Israel has traditionally carried out mainly basic research in universities and Government laboratories. In an effort to re-orient research toward commercial application, the Government in 1966 initiated a 50-50 matching grant program to encourage R&D in the private sector. To give a further impetus, the Government now proposes to support industrial research more generously through grants to industry and research institutes for up to 80% of the cost of selected projects of "national importance", i.e. projects with significant potential payoff, but which private enterprises for the most part are presently unable to undertake because they are relatively new and small by international standards, the required R&D outlays are substantial in relation to their available resources, the risk on new and sophisticated products is high and cannot be spread over many research projects (as they would in a larger firm), and the supply of private risk capital is far short of expansion targets. The program is well-conceived.

viii. In view of Israel's limited capabilities in evaluating the commercial and technical risks involved in developing new products and in launching them in international markets, the Government proposes: (a) to launch a first set of projects of national importance on the basis of the best evaluation possible with present staff; and (b) to build up its own internal capability to review proposals presented to it by private firms. The Office of the

Chief Scientist in the Ministry of Commerce and Industry (OCS), now handling inter alia the matching grant program, will be the entity responsible for carrying out the Government's objectives. It will also serve as the project unit for the R&D component.

ix. The proposed R&D project is intended to assist the Government (specifically the Office of the Chief Scientist) to improve its capability to evaluate proposals for commercially oriented R&D. This will involve the development within the Government, not only of the purely technological appraisal capability typical of a scientific research granting agency, but also of technical, financial and commercial expertise sufficient to allow it to promote and competently review proposals for R&D on a commercial timetable leading to commercial prototypes and to specifications and selling prices dictated by a market. As a vehicle for the development of OCS's capabilities, the proposed project will support: (a) three subprojects aimed at developing commercial prototypes, which appear promising on the basis of preliminary evaluation (rural telephone systems, prime movers, and tomographic scanner); (b) two projects involving applied research at the early stages (solar ponds and jojoba liquid wax); and (c) a multi-disciplinary regional technological institution (the Negev R&D Authority) which will expand facilities of an infrastructure nature. In consultation with the Bank, a sum up to US$150,000 may be allocated to OCS from Bank funds to enable it to obtain expertise and services abroad, if needed. The Bank's direct and intimate involvement in the review of R&D subprojects provides a better opportunity to influence and accelerate the development of the OCS's appraisal/supervision capabilities, than if it were merely to provide technical assistance, particularly through the discipline that a financial intervention is likely to impose.

x. In selecting these subprojects, the following criteria were employed, as appropriate: non-defense orientation; technological feasibility; possibility of market success; overall capability of the undertaking entity; possible technological spin-offs; benefits to Israel's economy; usefulness of the prospective technology to other developing countries; inability of the sponsoring private firms to borrow for R&D or to self-finance; experience and capability to commercialize technology, and financial strength of the private firms. All R&D projects carry a measure of risk, but the risks in the proposed subprojects are reasonable. On the other hand, if the subprojects are successful, the potential financial results and technological spin-offs can be substantial in relation to the R&D investment.

xi. The proposed R&D subprojects were initially appraised as follows: the technological and marketing aspects of each proposal were reviewed with the assistance of specialized expertise drawn from inside and outside the Bank. The appraisal mission visited and evaluated the laboratory facilities, interviewed the technical staff and management of the sponsor, and evaluated the sponsor's commercial strategy and financial status. The financial and economic rates of return of each subproject, except for those whose potential benefits are not amenable to quantification, were estimated in order to demonstrate that, if commercially successful, each of the subprojects promises a reasonable rate of return. The rates of return obtained are necessarily

based on rough estimates of sales revenues and costs, including R&D expenditures, for the products to be developed. They will need to be recalculated periodically as development progresses. Financial rates of return (after taxes) range from 30% to 43%; economic rates of return from 13% to 41%. They are high or acceptable.

xii. Progress against the proposed timetables, technological and market developments related to the ultimate success of the product, the market studies presented by the sponsors as the projects advance, as well as all aspects of the normal supervision procedure, will be followed closely by the Office of the Chief Scientist and by the Bank. The progress made by the Office of the Chief Scientist toward the development of a capability to appraise risk capital propositions will also be regularly reviewed. The Bank will thus be a participant in an institution building process, gaining new insights from this experience which may be turned to good use in other developing countries. In addition, this scrutiny would permit an early decision to terminate the financing of a sub-project whose probability of success is low.

xiii. The total cost of the R&D component is estimated at US$22.3 million, of which US$8.4 million (38%) would be in foreign exchange. The Bank funds would cover US$5 million, or about 60% of the foreign exchange costs. The grant element for all subprojects amounts to US$14 million, or 63% of the total cost of the R&D component. The Government expects to recoup part of the grants from the profits of successful subprojects.

xiv. The Bank will not finance the civil engineering works, which amount to only US$1.4 million and involve several subprojects in different locations. R&D equipment is to a considerable extent specialized and proprietary. The individual items are of relatively small value and procurement is spread over a period of up to five years; bulking is not feasible. Furthermore, there is adequate representation of foreign suppliers locally to ensure competition. As at present, the Office of the Chief Scientist would satisfy itself about the need for the equipment, the actual purchase and use, and its cost. However, the Office will require applicants to request quotations for equipment from at least three suppliers if the value of each item is over US$20,000.

xv. The R&D component is suitable for Bank funding of US$5 million, to be repaid over 15 years, including a grace period of 5 years. The industrial R&D component will enhance the developmental impact of the overall loan and Bank funding should have considerable institution building effects.

The Vocational/Technical Training Component

xvi. Israel's industrial effort is increasingly hampered by a shortage of skilled workers and middle and high-level technicians. The Government is attempting to alleviate the situation through a comprehensive program of technical training designed to meet the projected needs of the expanding industrial sector. The Government's program and priorities are soundly conceived. The

program involves expansion of vocational and of post-secondary technical education, including retraining and refresher programs, on-the-job training, apprenticeship programs, youth centers, and rehabilitation programs.

xvii. The proposed component would provide for the expansion of training facilities and programs sufficient to meet about 35% and 30%, respectively, of the projected shortage of skilled workers and technicians for 1985. To improve the quality and efficiency of existing training programs, the component would also provide the additional equipment needed to meet new program requirements and/or to replace obsolete equipment which heretofore has limited the type and level of training opportunities available to youths and adults. The project would be directed specifically toward meeting the existing and projected manpower constraints, particularly in the industrial sector. Furthermore, the project would help reduce economic and social disparities by providing increased training opportunities for early leavers from the formal education system as well as for adult workers requiring retraining to enable them to be productively employed in a changing labor market.

xviii. A project unit would be established as part of the existing structure for project implementation within the Ministry of Labor. The unit would supervise the implementation of the proposed component, coordinate activities within the Government and with private bodies and provide liaison with the Bank. In addition, the establishment of a project implementation unit would provide a new and viable link to external sources, including the Bank, for the exchange of planning, costing, evaluation and implementation procedures and methods different from many currently in use by the Ministry of Labor.

xix. The component comprises: (a) construction and/or extension and equipment of three vocational training centers and one technician/practical engineering institute; and (b) provision of equipment for one vocational training center and two technician/practical engineering institutes. The construction of project items would be based on standardized schedules of accommodations already established. All contracts for civil works and equipment would be awarded on the basis of the Bank's guidelines for international competitive bidding.

xx. The total cost of the vocational/technical training component is estimated at US$15.8 million and the foreign exchange component at US$5.2 million. The project is suitable as a basis for Bank funding of US$5.0 million, to be repaid over 15 years, including a grace period of 5 years. The proposed funds would finance 96% of the foreign exchange costs and be equivalent to about 32% of the estimated project cost.

APPRAISAL OF

AN INDUSTRIAL DEVELOPMENT PROJECT IN

ISRAEL

I. INTRODUCTION

1.01 This report appraises a composite industrial development project, involving: (a) a (fourth) loan to finance the Industrial Development Bank of Israel (IDBI); (b) industrial research and development (R&D), with the Office of the Chief Scientist in the Ministry of Commerce and Industry as the project unit; and (c) vocational/technical training, with a project unit to be set up in the Ministry of Labor. The Bank loan, in the amount of US$35 million, will be made to the Government of Israel, which in turn will on-lend US$25 million to IDBI. The R&D and technical training components will each be funded with US$5 million. The proposed multi-purpose project is expected to contribute to the implementation of the Government's industrial development policies.

1.02 IDBI was established in 1957 and has received three Bank loans totalling US$60 million. IDBI is an efficient development financing institution with a solid record of performance in terms of both financial support to industry and overall development impact. This report first appraises IDBI for the new funding and focuses on IDBI's overall performance since the last Bank loan was made in June 1970. The R&D and technical training components of the Bank loan are appraised in turn. A detailed review of the Israel's economy can be found in "Current Economic Position and Prospects of Israel," which is being distributed separately to the Executive Directors. The present report is based on the findings of an appraisal mission to Israel in October-November 1974, composed of Messrs. George C. Maniatis, James L. Theodores, Henry B. Thomas, H.K. Work (R&D consultant) and J.C. Jones (consultant on technical training). Mr. Charles Weiss collaborated in the appraisal and selection of the R&D subprojects. The opinion of specialists in R&D was also solicited.

II. THE ENVIRONMENT

A. Economic Performance

2.01 Remarkable growth in national and industrial output, full employment, high level utilization of productive capacity, and considerable improvement in the balance of payments, were the dominant features of the Israeli economy between the 1967 and 1973 wars. GNP increased at 10% per annum in real terms during 1968-72. Total fixed capital formation increased at 17% per annum in constant prices, raising the investment rate from 20% of GNP in

1968 to 29% in 1972. During the same period, fixed investment in the industrial sector increased at 17% a year in real terms (11% on average in 1970-72). Despite manpower shortages, industrial output increased at 13% a year. Industrial exports (excluding diamonds) increased at 16.5% per annum, stimulated by fiscal and financial incentives. Reversing the past trend, the balance of payments showed a surplus of US$585 million in 1972 compared with a deficit of US$94 million in 1968.

2.02 The October 1973 war caused major economic dislocations and a sudden contraction of the economy. However, by the end of 1973, civilian employment and production were about 20% below prewar levels. Real GNP increased by 7.5% in 1973. Total fixed capital formation increased by 7% but industrial investment declined by 8%, adversely affected by manpower shortages, transportation bottlenecks and the uncertainty about the economic outlook. Industrial output rose by approximately 6% while exports (excluding diamonds, which account for about one-half of industrial exports) by 21%, reaching US$637 million. Due to the greatly increased defense imports during and following the October war, the overall deficit on goods and services account more than doubled in 1973, reaching US$2.6 billion. However, in response to the emergency, unilateral transfers and capital inflows increased substantially, and the balance of payments showed a surplus of about US$600 million. In 1973, wages rose by 23% (compared with 16% in 1972), partly as a result of cost of living increases and partly as a result of competition for labor in a tight labor market. Despite the Government's restrictive monetary and fiscal policies and price controls, the price level rose by 20%. Rising import prices, stepped-up defense expenditures, and wage increases far exceeding productivity rises, were major causes of inflationary pressures.

2.03 Real GNP increased by an estimated 6-7% in 1974, due to the Government's anti-inflationary measures and the decline of total gross investment by 1% over 1973. Industrial investment, however, picked up considerably from the 1973 low level and rose by about 14% in real terms (to some IL 2,150 million in current prices). Industrial production continued to recover during 1974, rising at about 12% over 1973. Earlier in the year, wages were increased by sizable cost of living adjustments. As a result of the substantial rise of defense imports, the deficit on goods and services increased further in 1974 and reached US$3.4 billion; the overall balance of payments showed a deficit of about US$500 million.

2.04 In July 1974, the Government took further policy measures to stabilize the economy and to strengthen the external account. Fiscal and monetary measures included increases in direct taxes, a freeze on social public expenditures, restrictions on public sector construction, increased interest rates on development loans, and a freeze on the prices of basic consumer goods. To improve the external account, the surcharge on imports (excluding basic foodstuffs and fuel) was increased from 25% to 35%, while export rebates were further raised. These measures did not produce the expected results and, on November 10, 1974, the Israeli Government launched a severe austerity program in an effort to improve the country's rapidly deteriorating balance of payments situation, bolster its declining foreign exchange reserves, and curb

the mounting inflationary pressures. The Israeli pound was devalued from 4.2 to 6 to the U.S. dollar, imports of luxury consumer durables were banned for six months, a 15% import surcharge was imposed on all other imports (replacing the previous 35% rate), and new taxes were levied on overseas travel, financial institutions and capital gains. The Government is pressing the Histadrut (Federation of Labor Unions) to agree to a freeze in basic wages, while it has promised assistance to low-income groups to alleviate the adverse effects of devaluation. The measures are expected to ensure an uninterrupted inflow of industrial raw materials and capital goods and, thus, to maintain high levels of employment and industrial investment, output and exports. Price increases in 1974 reached an annual average of 40%, reflecting the cumulative effects of the devaluation, world inflation and the state of emergency. The Government appears determined (and prepared) to take the requisite measures to slow down inflation rates. The prospects of the Israeli economy are discussed in paras 3.24-3.25.

B. The Industrial Sector

2.05 Industrial Objectives and Policy. In sharp contrast with Israel's relatively poor natural resource endowment, the labor force is well-educated, highly motivated and efficient. In these circumstances, industrial development based on strong technical ability, R&D, and export-oriented industries is the main way Israel can maintain a high rate of growth, strengthen its balance of payments, and ensure full employment of its labor force, including the absorption of new immigrants. The Government, as reflected in the 1972-76 Economic and the 1974-78 Industrial Plans, has endorsed this approach to industrial development and is eager to promote the growth of sophisticated science-based industries, such as electrical and electronics goods, scientific instruments, chemicals, plastics, and engineering. The promotion of an indigenous industrial technology, a parallel Government objective (see paras 4.01, 4.03), is facilitated by the existence of a sizable pool of highly qualified scientists and a developing entrepreneurial class increasingly responsive to both incentives and realities.

2.06 Although efficient import substitution, especially in selected capital goods, is encouraged, the main thrust of the Government's industrial policy is to expand exports. Export-oriented growth is dictated inter alia by the limited size of Israel's domestic market. The reorientation of the country's industrial effort is entrusted to private initiative and supported by incentives (para 2.10). In addition, the Government is concerned with the comparatively small plant size, fragmented production and family ownership of the Israeli industry, which prevents it from reaping scale economies. Thus, a related objective of the Government's industrial policy is to change the prevailing structure of industry by encouraging mergers of plants and firms, particularly in industries producing consumer durables and catering to the local market. The role of small-scale industry would be limited to filling the interstices. A side-effect of this latter approach is that it would economize on scarce resources such as entrepreneurship, managerial and marketing skills, and highly-skilled labor. Greater exposure to foreign competition,

through gradual liberalization of imports (already under implementation), is expected to counter the attendant adverse effects of the greater concentration of industrial power.

2.07 Technical Training. The country's industrial effort is increasingly constrained by a shortage of skilled workers and middle and high-level technicians. The Government is attempting to alleviate the situation through a comprehensive program of technical training designed to increase labor mobility and to meet the projected needs of the expanding industrial sector. The program involves basically expansion of vocational and of post-secondary technical education, including retraining and refresher programs, on-the-job-training, apprenticeship programs, youth centers, and rehabilitation programs.

2.08 Research and Development. Industrial and university expenditures on R&D in Israel currently amount to some 1.4% of GNP; however, only 22% is applied research carried out by industry. In an effort to re-orient research toward commercial application, the Government has since 1966 been encouraging R&D in the private sector through a program of 50-50 matching grants to firms demonstrating initiative and ingenuity, but lacking the necessary risk capital. During fiscal years 1971-73, Government matching grants totalled US$10.4 million. Over half went to the electronics industry, about 25% to chemicals and pharmaceuticals, and the remaining 25% spread among metal-working, food-processing, and other industries. The major part of the Government funds did not exceed US$50,000 per research project, which reflects the rather small scale of the program. Further support to industry for R&D is provided through the funding of science-based industrial parks, access to Government laboratories, low interest rates for construction of facilities and through the sharing of the expense of technology forecasting and information centers.

2.09 To further accelerate the pace of development and commercialization of industrial technology, the Government now proposes to support industrial research more generously through grants to industry and to research institutes for up to 80% of the cost of selected projects of "national importance," i.e., projects with significant potential payoff but which private enterprises are presently unable to undertake because they are relatively new and small by international standards, the required R&D outlays are substantial in relation to their available resources, the risk on new and sophisticated products is high and cannot be spread over many research projects (as they would in a larger firm), and the supply of private venture capital is far short of expansion targets. 1/ The Government's support of R&D projects is also prompted

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1/ To a very limited extent, risk capital for research oriented and risky ventures in Israel is provided by two entities: (a) the Discount Bank Investment Corporation which, as of December 31, 1974, had outstanding equity participations (book value) amounting to about IL 6 million and loans to IL 400,000; and (b) the Israel Research and Development Corporation Limited (85% of its shares being owned by the Government and 15% by IDBI) with outstanding equity participations of about IL 3 million.

by its concern to generate employment opportunities for a science-trained manpower which is becoming available locally, and through immigration, in increasing numbers. Given the scale and speed intended, it is very doubtful that the proposed program would make headway without Government financial assistance. The program supports these objectives which are reasonable.

2.10 Investment and Export Incentives. Israel operates a complex scheme of development grants, tax exemptions, low interest loans and export incentives designed to encourage domestic and foreign investment, to develop less advanced areas and to promote industrial exports. To qualify, investors must meet certain conditions which vary according to the development area and nature of investment projects (see Annex 1). Special benefits are granted to promote investment in science-based industries, including government guarantees for term loans. Development loans at concessionary terms and government grants accounted for 51% and 7%, respectively, of the total sources of finance of fixed investment in the industrial sector in 1968-1973 (see Annex 9). Although the full range of incentives may not have been necessary in every case to achieve the Government's objectives, on the whole it does not appear that the incentives system, as applied, has been either wasteful or superfluous. Furthermore, incentives have not resulted in misallocation of resources, since the viability of the industrial projects promoted is assessed by sound economic analysis (calculation of the cost to the economy of the foreign exchange saved or earned). Industry's impressive growth and performance in the past two decades attests to the beneficial influence of the incentives scheme. The cost to the Government of the various forms of incentives is estimated at approximately 20% of total industrial investment. The Government proposes to amend the existing incentives in July 1975 to increase their effectiveness and to reduce the costs of administering the system. The Bank has commissioned a study to assess the effectiveness of incentives in several countries, including Israel, in stimulating economic growth and exports, their impact on resource allocation, fiscal implications, etc. The part on Israel, to be prepared by an economist of the Bank of Israel, has not yet been completed and this report could not benefit from the study.

C. Financial Setting

2.11 The Capital Market. Since the mid-1960's, equity capital has been a relatively unimportant means of raising funds, in part due to the steady decline of stock prices and in part because of the more favorable terms of loanable funds enterprises can obtain from Investment Banks under the investment incentives scheme. During 1968-73, industrial enterprises raised only IL 47.5 million in the form of share capital. Also, because of the Government's pre-emptive policies and controls on the new issues market, coupled with the need for indexing new issues, it has been very difficult for industrial enterprises to float bond issues. During 1968-73, industrial bond issues amounted to a meager IL 30 million. Institutional investors, the major source of funds for the capital market, must invest 85-90% of their funds in Government bonds or Government approved securities. In addition, the Government mops up considerable amounts of funds in the form of compulsory

loans and contributions. In this set-up, the program of Government investment incentives has become a major source of long-term financing for industry, while it enables the Government to exercise wide influence over the allocation of funds of the financial institutions engaging in term financing and the public sector companies. Since the amount and terms of most Government borrowing are discretionary and a substantial part of the market is captive, interest rates are not determined in competition with other borrowers and do not, therefore, necessarily reflect the prevailing market conditions. Government bond issues, with principal and interest linked to the cost of living, vary from 4% to 6.5%. The total stock of linked government bonds held by the public directly or through mutual funds exceeded IL 8 billion in mid-1974.

2.12 Interest Rates. There is virtually no free market for term lending. Medium- and long-term financing is made available to industry at official interest rates through the major Investment Banks under Government supervision. On July 2, 1974, the Government increased the interest rates on term loans as follows: Area "A" (greatest development priority) from 6.5% to 8%; Area "B" (less development priority) from 8% to 10%; and Area "C" (already developed regions) from 9% to 12% (and to 15% for loans to "marginal" industries). Furthermore, with regard to development loans to Area "C" approved after November 6, 1974, the Government is in the process of implementing its decision that, if the cost of living in a particular year rises more than 20%, the excess will be added to the outstanding principal. The additional principal will bear the same interest rate as the original loan and will be repaid after the repayment of the initial principal of the loan. Interest rate management and its implications are discussed in Annex 2.

2.13 Since 1963, the risk on foreign exchange borrowing has essentially been borne by the Government. In principle, a recommendation that the Government passes the risk on to the ultimate users of foreign funds would be legitimate. However, the current difficult balance of payments situation and the attendant uncertainty as to the implications of such an important change, is likely to render the business community extremely cautious and to adversely affect investment activity. This at a time when the Government's major objective is to maintain high levels of industrial investment in order to promote growth and exports, to generate employment opportunities for a large number of immigrants, and to prevent emigration. In light of this, a change in the status quo involves a high element of risk and continuation of the present Government policy appears to be in the best interest of the country. See also Annex 2.

2.14 Interest rates on short-term credits from commercial banks are presently at 20-1/2% per annum or higher, depending on the borrower's standing. However, since 1970 the Government has introduced a system of "directed" credits for working capital, granted at preferential rates to key sectors of the economy, mainly exports, industry located in priority development areas and agriculture. For exporters the maximum rate is currently 6%, while for industry it was recently raised from 11% to 13%. "Directed" credits accounted for 53% of the total short-term bank credit during 1970-74.

III. APPRAISAL OF THE INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED (IDBI)

A. IDBI's Structure

Ownership and Control

3.01 Establishment and Ownership. IDBI was established in 1957 on the joint initiative of the Government, the three largest commercial banks in Israel, the Histadrut and the Manufacturers' Association. The presently authorized share capital of IL 647 million is divided into eleven classes, two of which have not been issued. Of the outstanding share capital of IL 375 million, only Ordinary A shares amounting to IL 15 million carry full voting rights. The Government is the largest shareholder, holding 26% of the Ordinary A shares (see Annex 3).

3.02 Board of Directors and Committees. Holders of IL 250,000 or more of Ordinary A shares are entitled to appoint one director. This leads to a theoretical Board size of 59 though only 50 were appointed on October 31, 1974 (see Annex 4). The Board represents a broad cross-section of financial and business institutions in the country as well as foreign investors and the Government. It meets three or four times a year to review actions taken by the Executive Committee. The Board is responsible for the election of the Chairman and Vice-Chairmen and the appointment of the General Manager(s). To increase its effectiveness, most of the Board's powers have been delegated to three Committees: The Executive Committee, the Loan Committee and the Vice-Chairmen's Committee. These Committees are described in Annex 4.

Management and Staff

3.03 Dr. A. Neaman, IDBI's Managing Director since 1961, stepped down on February 28, 1975, having reached normal retirement age. He will, however, remain a member of the Board of Directors and of the Executive Committee. His responsibilities were divided between Messrs. D. Friedmann, IDBI's Deputy General Manager, and Y. Gill, General Manager of IDBI's subsidiaries, who were appointed jointly as General Managers. Both men are experienced and competent. The new organizational structure of IDBI is depicted in the Organization Chart attached as Annex 5.

3.04 The staff is competent and well motivated. IDBI follows highly selective recruitment policies and the overall quality of its staff has further improved in recent years. During the past five years the professional staff has been increased by 44 and now totals 89. Only the Follow-up Department has suffered a net loss of one professional staff member over this period and with a staff of only seven is stretched rather thin. Management is aware that the follow-up staff needs strengthening and intends to recruit additional staff. The situation appears to be under control.

3.05 Subsidiaries. IDBI owns, equally with the Government, the Investment Company for Industrial Development in Israel Ltd., which in turn controls several other companies. The operations of these companies are relatively insignificant compared to those of IDBI's. The major subsidiary (IFC) concentrates on equity investments and on assisting companies experiencing financial and managerial difficulties. These companies are described in Annex 6.

Policies and Procedures

3.06 Policies. IDBI does not have a comprehensive statement of general business policies. 1/ Its lending policy has evolved in the course of operations, guided by its Articles of Association and the Government's policies for industrial development. Individual loan applications are judged on their own merits with financial and economic viability being of critical importance in project selection. Although relations with the Government are close, IDBI maintains a high degree of independence in its day-to-day operations and decisions. Its activities have been concentrated almost entirely in industrial term lending.

3.07 Project Appraisal. The quality of IDBI's project appraisals is good. IDBI has made numerous sector studies in connection with its project appraisals, in part with the assistance of consultants. IDBI pays attention to the economic justification of projects, is mindful of the minimum economical size of the plants it finances, and calculates the cost to the economy of the foreign exchange saved or earned in almost all projects. It has agreed to calculate the economic rate of return for large projects and to perform sensitivity tests for key variables. IDBI considers environmental aspects of the projects in its appraisal reports as well as the steps taken to deal with them.

3.08 Follow-Up. Projects under construction are followed up by the Assessment and Checking of Implementation Department, headed by the Chief Engineer. Site inspections are normally made at least twice during construction, though more often for larger projects. Upon completion of construction, the Follow-Up Department becomes responsible for the project. At present there are some 1,400 clients under supervision. Some of these clients require relatively little attention while others are under appraisal for an additional loan and, consequently, pose no burden on the limited staff of the Follow-Up Department. Size of loan, financial difficulties, arrears, industry problems, or detection of a problem by the computerized "early warning" system (see Annex 7) are some of the criteria used to select those clients to be visited. The Department undertakes some 120 plant visits a year, preparing a report on each. There is close cooperation and feedback between the Follow-Up and Appraisal Departments.

1/ IDBI's policy guidelines are contained in various internal documents, such as Board Minutes and staff instructions. IDBI will compile and present systematically all such directives in one document, which will be made available to the Bank.

3.09 Procurement and Disbursement. IDBI usually asks its clients for quotations from more than one supplier and satisfies itself that the quality and prices are the best obtainable. It has developed expertise in many industrial fields and so is often able to make its own comparisons and to advise clients. Disbursements are made only after careful checking of the documents and, when appropriate, on-site inspections. Procurement and disbursement practices are satisfactory.

B. IDBI's Operations

Summary of Operations

3.10 IDBI's loan operations are described in Annex 8. IDBI does not invest directly in equity investments, leaving this activity to one of its subsidiaries (see Annex 6). IDBI's loan approvals have been increasing during 1968-1974 at 30% per annum in terms of amounts but only at 7% in terms of number of loans, reflecting the growing average size of its loans. In 1973 loan approvals totalled IL 450 million. Commitments and disbursements have kept pace with approvals, though disbursements in 1973 and the first six months of 1974 were adversely affected by the October 1973 war. These results are generally in line with IDBI's forecasts prepared in 1972.

3.11 Besides lending its own resources to projects it appraises, IDBI also administers, with no risk, funds earmarked for particular, often public sector, projects. In such cases its involvement is limited to handling disbursement and follow-up work, for which it receives a fee of (usually) 3/4 of 1% p.a. of the amounts administered. Some 16% of outstanding loans are in this "administered" category.

3.12 IDBI's loan portfolio is quite diversified and about half is covered by full or partial guarantees by the Government or others. The guaranteed loans are usually to projects which are viable but cannot offer adequate security or are financially marginal but economically attractive (in less developed areas, with good export potential, creating employment, using sophisticated technology, etc.). Included also are all loans administered by IDBI.

IDBI's Role and Development Impact

3.13 IDBI continues to be the most important of the five financial institutions engaged in term lending in Israel and an important instrument for the implementation of the Government's industrial policy. During 1969-73 IDBI contributed 30% of the total financing for industrial investment (see Annex 9). IDBI-financed projects account for 60% of the investments in the industrial sector, while IDBI disbursements account for 45% of the sources of finance in the projects it sponsors. With projects becoming larger, IDBI is getting increasingly involved in consortium financing. IDBI does not take part in mergers or rationalization schemes, a function which it has delegated to a subsidiary.

3.14 IDBI's lending operations are within the Government's industrial policy framework. About 40% of the amount of loans approved by IDBI during 1969-74, and 60% of its pipeline as of September 30, 1974, were allocated to science-based industries. Approximately 50% of IDBI-financed projects are located in the less developed regions. Some 25-30% of the projects approved by IDBI since 1970 are expected to export over 20% of their production. IDBI estimates that 80 export-oriented projects it approved in 1973 will result in about US$120 million worth of exports a year, representing 10% of the industrial exports in 1973 (19% of exports of diamonds are excluded). Value added to sales in IDBI-financed projects ranges from 40% to 80%, with the higher frequency of occurrence being between 50% and 60%. The cost in local currency of the foreign exchange earned or saved, estimated on the basis of a representative sample of IDBI's projects, varies between IL 3 and IL 5 per US dollar, which compares favorably with the effective exchange rate of IL 5.4 = US$1 prevailing before the devaluation on November 10, 1974.

Progress in Meeting the Objectives of the Third Bank Loan

3.15 The third Bank loan of US$25 million became effective on August 25, 1970, and was fully committed by June 30, 1973. The undisbursed amount as of February 28, 1975 was US$3.1 million. The small delay in the utilization of the loan is attributable to the need for IDBI to reappraise several large projects following the devaluation of the Israeli pound in 1971; to the lack of projects with a large enough import content; to the 90-day rule against retroactive financing; and to IDBI's efforts to use existing lines of credits tied to procurement whenever possible.

3.16 Aside from covering part of IDBI's foreign exchange need, a major objective of the third Bank loan was to induce IDBI to continue the search for new capital, particularly abroad. IDBI's resource mobilization effort abroad has been successful, as described in para 3.18. An institution building aim of the third Bank loan was that IDBI would address itself with particular care to the economic justification of projects during their appraisal and that the reports submitted to the Bank would reflect the economic analysis made. IDBI has accepted and acted on the Bank's advice in this respect.

C. IDBI's Financial Situation

Resource Position

3.17 IDBI's resource position on September 30, 1974, indicated a technical over-commitment of IL 16.3 million (see Annex 10). However, several foreign lines of credit that were under negotiation at the time but not signed are not included as resources; these exceed the over-commitment. Also not reflected is the Government's intention to provide IL 400 million during the three fiscal years 1975-1978; these may be provided as additional perpetual deposits though the terms are still being discussed. These perpetual deposits are convertible into Ordinary B shares at par at the Government's request. They are not repayable unless the Government's voting power falls below 20%, in which case the Government has the right to demand repayment over 25 years after ten years' grace.

Resource Mobilization Effort

3.18 From July 1, 1970 to June 30, 1974, IDBI had raised in the form of foreign loans and debentures some US$155 million equivalent, including loans from a dozen new sources in the US and Western Europe. At home, the Government, by controlling, setting priorities for and pre-empting the new issues market, dissuaded IDBI from having frequent recourse to the local capital market. This stand was reinforced by the fact that IDBI's debentures would have to be indexed while IDBI is not allowed to index its loans to industry. Thus, IDBI was able to tap various local sources and issue local debentures (linked to the cost of living index) amounting to only some IL 64 million. For a considerable portion of its requirements in local resources IDBI was accommodated by the Government, which willingly met IDBI's needs. As noted above (para. 3.17), the Government plans to remain IDBI's major provider of funds in local currency.

Quality of Portfolio

3.19 As of June 30, 1974, arrears were 3.5% of IDBI's loan portfolio (see Annex 11), with some 9% or IL 177.2 million of the portfolio affected by arrears. Of this latter, 74.5% is guaranteed by the Government, leaving only IL 45 million or 2.3% of the portfolio at IDBI's own risk. Arrears are well within acceptable limits. Actual losses likely to be suffered by IDBI are minimal, taking into account the guarantees and collateral security. The auditors are of the opinion that the provision for losses (IL 15.6 million) is adequate. In addition, IDBI has a special reserve for unforeseen losses which totalled IL 21 million on June 30, 1974.

Financial Performance and Position

3.20 Income Performance. Recent income statements and balance sheets are given in Annexes 12 and 13. Earnings have shown steady, if not spectacular, growth and have represented a return in recent years of 15 to 16% on non-Government held share capital. Administrative expenses have been held to between 0.3 and 0.4% of average total assets, among the lowest of the DFCs associated with the Bank Group. In 1973 the dividend rate on Ordinary A share was 13-1/4% and on other classes of shares from 3% to 11-1/4%. In spite of the increasing dividend amounts, the payout ratio has been declining since 1970, amounting to 61.5% in 1973. IDBI earns a spread of 2.2% on its lending activities (see Annex 14), which is adequate and allows satisfactory increases in reserves after the payment of dividends.

3.21 Financial Position. IDBI has operated over the years with a current ratio of less than one. This tight liquidity position is a reflection of its practice of keeping its resources fully committed and, at times, even slightly overcommitted (see para. 3.17). It is able to meet its short-term requirements through long-standing arrangements for short-term accommodation with the Bank of Israel. In spite of the liquidity position, IDBI's financial position is sound.

3.22 IDBI's increased borrowings are causing its debt/equity ratio to rise. This ratio, as defined in the last Bank Loan Agreement, had reached the three to one limitation on June 30, 1974 and, as a direct result of the November 10, 1974 devaluation of the Israeli pound, most likely exceeds the limit now. A ratio of three to one is very conservative for an institution as financially strong and mature as IDBI and it is proposed to increase this ratio to five to one. This ratio is still conservative for IDBI but it will subject IDBI to pressure to increase its equity base.

3.23 Audit. IDBI's accounts are audited by Messrs. Somekh, Chaikin, Citron & Co., an Israeli firm of independent public accountants. The financial statements have always been approved without qualification.

D. IDBI's Prospects

The Environment

3.24 The Development Plan for Industry 1974-78. The Government had prepared an Economic Plan 1974-78 in 1973 which is now out of date and under revision. A Development Plan for Industry 1974-78, produced in 1974, projects a real GNP growth of 7.5% per annum during this period, assuming full employment, a 3.2% growth of the labor force (which implies an influx of some 60,000 immigrants a year), and an annual rise in national productivity of 4.5% (6% in industry). Industrial investment is forecast to increase by 16% a year in real terms, while industrial output by 11%. Industrial exports would increase by some 30% per annum, rising much faster than total merchandise exports. The Preferential Trade Agreement with the EEC, inter alia, is expected to facilitate the expansion of exports to these countries.

3.25 The years 1975 and 1976 will be particularly difficult for Israel. Measures to stabilize the economy are bound to have a restrictive effect on public spending, particularly non-industrial development programs, while the import capacity of the country will remain under severe strain. The standard of living will most likely decline and some unemployment may also be created, particularly in non-industrial sectors. According to tentative estimates of the Bank economic mission, real GNP may grow only slowly during 1975 and 1976, although it may pick up thereafter. The economic mission also projects continuing annual deficits on goods and services of about US$3-3.5 billion in the next five years. However, the basic balance, except for 1975 when the deficit may reach US$300 million, is projected to show small surpluses of around US$100 million each year, reflecting rapid growth of exports and a projected gradual rise in unilateral transfers and other capital inflows. In light of the above remarks, the targeted growth rates of GNP, industrial investment and exports in the Plan appear to be optimistic, even assuming an easing of the political situation. Achievement of the Plan's targets is heavily conditioned on the country's export performance and the magnitudes of such uncertain factors as defense expenditures, immigration and inflows of foreign capital.

Forecast of Operations and Resources

3.26 Forecast of Operations. IDBI's business prospects are good. The Government will continue to lay heavy stress on industry as the main way to improve export earnings, to absorb new immigrants and prevent emigration, and to develop the more backward areas. It can therefore be reasonably expected that a high level of industrial investment will be maintained despite the enunciated austerity program and the slowdown in the world economy. This view is reinforced by the fact that 75-80% of industrial investment in Israel is in expansion projects. Industrial investment in Israel can reasonably be expected to increase by 14% in 1975 and 1976 and about 15% annually in 1977-79 in real terms. IDBI forecasts commitments of IL 2.8 billion over the two-year period July 1975-June 1977 and of IL 8.4 billion during 1975-79, based on the above more realistic growth rates of industrial investment and on the size of its pipeline (over IL 1.5 billion on September 30, 1974). This would result in IDBI financing about 27% of total industrial investment. IDBI's projections appear attainable.

3.27 Resource Requirements. IDBI's projections of loan operations and cash flow statements (see Annexes 15 and 16) indicate that during the five years 1975-1979 IDBI will disburse some IL 7.3 billion (US$1.2 billion equivalent) in new resources. Arrangements have been made or at least begun for about IL 3.3 billion of this amount. Well over half of these IL 7.3 billion is expected to be in foreign exchange, including all of the amount to be raised from as yet unidentified sources.

3.28 Local Currency. IDBI estimates that half of its loans will be in local currency and half in foreign exchange. For the two-year period July 1975 through June 1977, during which the proposed Bank loan will be committed, IDBI is expected to make commitments of IL 1,420 million in local currency. These will be covered by loans or other transfers from the Government, local debentures, retained earnings and loan collections, with the Government covering any shortfall.

3.29 Foreign Exchange. IDBI's projected foreign exchange commitments over the same two-year period are some US$240 million equivalent. About half of this amount will be covered from existing lines of credit or new loans already identified and at various stages of negotiation. The rest will have to be covered by as yet unidentified sources. The proposed Bank funding would help to fill part of this gap.

Projected Financial Situation

3.30 Projected Profitability. Projected income statements are given in Annex 17. Net earnings are projected to grow from 1974 to 1979 at 13% a year. IDBI will probably allocate the proposed Bank funds to each of the three development areas in roughly equal portions, resulting in an average on-lending rate of 10 to 11% for the Bank funds (see para. 2.12). The Government, assuming the foreign exchange risk and providing a good portion of IDBI's capital, maintains IDBI's spread on most of its lending activities at 1-3/4%. IDBI's weighted average on-lending rate for all funds it employs

comes close to 11%. Administrative expenses are forecast to continue to be held to the low level of about 0.4% of average total assets.

3.31 Because the forecast assumes that all new resources (other than retained earnings) will be in the form of debt, the share capital becomes progressively more highly leveraged. The return on non-Government held share capital is projected to grow from 22% in 1974 to 45% in 1979. While it is likely that additional equity will have to be obtained, much of this will no doubt be issued to the Government with a low (perhaps 3%) dividend rate, so the return to the private shareholders will remain satisfactory. The pay-out ratio is expected to increase in 1974 and 1975, reaching 73.5% in the latter year, before beginning again to decline. This is a result of the November 1974 devaluation which increased the cost in Israeli pounds of dividends payable in dollars. Nevertheless, the build-up of reserves is satisfactory.

3.32 Financial Position. IDBI's projected balance sheets (see Annex 18) indicate that it expects to continue to operate with a current ratio of less than one, using the Bank of Israel's short-term accommodation to meet its short-term requirements. Experience supports the continuation of this arrangement. Its loan portfolio is forecast to grow at an annual rate of 28%, somewhat faster than total assets (23%). Provisions for losses, which amounted to 0.8% of the loan portfolio at the end of 1973, are expected to amount to 1.3% of the portfolio at the end of 1979. Considering the growth of other reserves, this position is satisfactory.

3.33 As a direct result of the assumption that all new resources will be in the form of debt, the debt/equity ratio, as defined in the most recent Loan Agreement, is projected to exceed the proposed new limit of five to one in 1976 and to reach ten to one in 1979. If, say, IL 300 million of the new resources were in the form of equity, this ratio would not exceed five to one until 1978.

3.35 Interest coverage is forecast to drop from 1.8 times in 1974 to 1.5 times in 1977 and remain at that level. Loan collections from its borrowers are forecast to exceed by substantial amounts loan repayments IDBI must make in each of the years covered by the projections. The cushion is provided by the large amount of resources expected to be made available as perpetual deposits which have no repayment obligations (except in certain highly unlikely circumstances). Debt service coverage is satisfactory.

IV. APPRAISAL OF THE RESEARCH AND DEVELOPMENT COMPONENT

A. The Role of R&D in Israel's Development

4.01 R&D is a key element in Israel's strategy of promoting export-oriented industries based on sophisticated product design and production

techniques. 1/ This strategy requires a high-level research capability closely integrated with sophisticated marketing and commercial skills at the enterprise level. It is based on the conviction in Israel that continuing reliance on foreign investment and licensing to acquire technology and know-how does not generally provide a sufficient competitive edge, and is intended to take advantage of one of Israel's major resources: its wealth of technical talent.

4.02 Exports based on sophisticated technology doubled between 1968 and 1973, reaching US$246 million, or 38% of industrial exports excluding diamonds. This is a remarkable effort for a country the size of Israel, accomplished in a short period of time. The Government projects that exports of science-based industrial products will grow at over 30% per annum in the next five years. This implies that an increasing number and range of industrial enterprises would have to strengthen their ability to commercialize technical innovation.

4.03 Israel has traditionally emphasized basic and applied research in university and government laboratories, and has paid insufficient attention to developing the requisite capabilities for actually using and commercializing the available knowledge. In Israel R&D is by and large not initiated by enterprises, as is the rule in a mature technological environment, but rather in research laboratories; the link with prospective users of the technology and with the market for the product tends therefore to be tenuous. The Government is aware of this and is now trying to rectify the situation through a reorientation of research programs toward commercial application (see also paras 2.08 and 2.09). It has already instituted a program of 50:50 matching grants and is proposing to institute a program of "projects of national importance" in which the grant element will be higher (up to 80%). Such an endeavor demands on the part of the Government first, a willingness to impose market discipline on the scientific and engineering staffs of public and private institutions and second, considerable sophistication in the evaluation of the commercial and technical risks involved in developing new products and in launching them in international markets. Few Israelis have all the requisite skills and experience at the enterprise level in this field, and those that do are often directly involved in the undertakings the Government wishes to promote. The Government thus faces a two-phase problem: (a) to launch a first set of projects of national importance on the basis of the best evaluation possible with present staff; and (b) to build up its own internal capability to review proposals presented to it by private firms or, in the long run, by risk-oriented investment firms.

1/ The Organization of R&D activity in Israel is briefly discussed in Annex 20.

B. The Proposed R&D Component

Objectives

4.04 The proposed R&D component is intended to assist the Government, specifically the Office of the Chief Scientist (OCS), to strengthen its capability to evaluate proposals for commercially oriented R&D. This will involve the development in the OCS, not only of the purely technological appraisal capability typical of a scientific research granting agency, but the development of technical, financial and commercial expertise sufficient to allow it to competently review proposals for R&D on a commercial timetable leading to commercial prototypes and to specifications and selling prices dictated by the market. To this end, agreement was reached during negotiations on specific steps to be taken to improve the OCS's existing structure (see paras 4.43-4.45).

4.05 OCS's organization and procedures will evolve continuously for some time as it gains experience of operations, and the Bank will finance a number of projects which will be used as a vehicle for the development of OCS's capabilities. These projects include: (a) three subprojects aimed at developing commercial prototypes, which appear promising on the basis of preliminary evaluation (rural telephone systems, prime movers, and tomographic scanner); (b) two projects involving applied research at the early stages of development (solar ponds and jojoba liquid wax); and (c) a multi-disciplinary regional technological institution (the Negev R&D Authority). The subprojects are tabulated below and are described in paras 4.13-4.29 of the report.

	Total Cost	Foreign Exchange Cost	Bank Financing Amount	Bank Financing %
	million US$			
I. Infrastructure				
1. Multi-disciplinary R&D Facility (R&D Authority-Negev)	8.2	3.4	1.65	49
II. Pre-Commercial Development				
2. Solar Ponds (Scientific Research Foundation)	1.7	0.3	0.30	100
3. Jojoba beans-liquid wax (R&D Authority-Negev)	1.6	0.6	0.40	66
III. Commercial Prototype Development				
4. Rural Telephone System (Tadiran)	3.9	1.8	1.00	55
5. Prime Movers (Ormat)	4.6	1.4	0.95	68
6. Tomographic Scanner (Elscint)	2.3	0.9	0.55	61
Technical Assistance to OCS	-	-	0.15	100
Total	22.3	8.4	5.00	60

4.06 The Bank's direct and intimate involvement in the review of R&D subprojects provides a better opportunity to influence and accelerate the development of the OCS's appraisal/supervision capabilities, than if the Bank were merely to provide technical assistance, particularly through the discipline that a financial intervention is likely to impose. Furthermore, by participating in Israeli programs, the Bank will gain valuable experience in dealing with a range of problems to be faced in the near future by an increasing number of developing countries, which aspire to develop the capability to introduce new industrial products based on indigenous technology into the world market.

Selection of R&D Subprojects

4.07 The six subprojects proposed for Bank funding were selected after appraisal of nine projects of national importance, non-defense oriented, submitted by the Government. All nine were reviewed for their technological feasibility and potential spin-offs; potential benefit to Israel's economy; usefulness of the prospective technology to other developing countries; and overall capability of the undertaking entity. Those projects involving private firms were also reviewed for possibility of market success; inability of the sponsoring firm to borrow for R&D or self-finance; and the experience, ability to commercialize technology, and financial strength of the firms. The ability of the Negev R&D Authority to render R&D services not generally available to the industrial community was considered in the appraisal of this subproject. The general approach and considerations applied to the initial appraisal process followed by the Bank are discussed in paras 4.10 and 4.30. An essential part of the decision to support the proposed subprojects was the confidence in OCS's ability, properly strengthened, to keep them under constant review.

Nature of R&D Project Appraisal

4.08 The distinguishing feature of the appraisal of a commercially oriented R&D project is that it is a continuous process. The initial appraisal takes place before the product is even designed. It is based only on a general notion of likely production method. For this reason, the initial appraisal answers only the question whether a particular project should be begun. This initial decision is based on a tentative assessment of the potential financial and economic benefits of the project, the risk of failure or partial success, and the R&D cost of the project. This judgment is based in turn on a "best" estimate of the technological feasibility of the proposed product, of the market for this product, its projected price, and of the practicability of the development and sales timetables. These estimates are buttressed by a calculation of the estimated rate of return of the project, if it is successful and if sales and cost targets are met. An important part of the decision to support a project is based on confidence in the overall ability of the sponsor to undertake the proposal -- confidence based on his past record in successfully carrying out R&D projects on a commercial timetable.

4.09 Once initially appraised, the progress of the project must be constantly monitored against the targets and timetables originally drawn up during appraisal. The timetables must be regularly revised and updated, and the prospects for success, the risks, and the prospective costs and benefits constantly reviewed and revised. If targets are not being met, and if revisions of the targets would endanger the commercial success of the project, the management of the firm must take appropriate steps either to improve performance or to terminate the project. Since the appraisal is carried out as an ongoing process rather than "once-and-for-all", the undertaking is never faced with an "all-or-none" risk. The decision at each point is whether to continue with the next phase of the project or to terminate it and accept the loss of the investment up to that point.

4.10 The proposed R&D subprojects were appraised as follows. The technological and marketing aspects of each proposal were reviewed, with the assistance of specialized expertise drawn from inside and outside the Bank. The appraisal mission visited and evaluated the laboratory facilities, interviewed the technical staff and management of the sponsor, and evaluated the sponsor's commercial strategy and financial status. The financial and economic rates of return of each subproject, except for those whose potential benefits are not amenable to quantification, were estimated in order to demonstrate that, if successful, each of the subprojects promises a reasonable rate of return. The rates of return obtained are necessarily based on rough estimates of sales revenues and costs, including R&D expenditures, for the products to be developed. They will need to be recalculated periodically as development progresses. The risk element in the subprojects selected is discussed in para 4.30.

4.11 In all subprojects financed by the Bank, progress against the proposed timetables, prospects (including technological and commercial developments related to the ultimate success of the product) as well as all other aspects of the normal supervision procedure, will be followed regularly by the Office of the Chief Scientist (see paras. 4.43-4.46) and by the Bank. The progress made by the Government toward the development of a capability to appraise risk capital propositions will also be regularly reviewed, and technical assistance will be provided as necessary. The latter will take the form of recommendations to the OCS to obtain the requisite expertise at its expense, regular supervision missions, and desk reviews of reports, etc., to be submitted regularly by the OCS. The Bank will thus be a participant in an institution building process, gaining new insights from this experience, applicable in other developing countries. In addition, this scrutiny would lead to an early decision to terminate the financing of a subproject whose probability of success, in light of intervening events, might fall below a critical level.

4.12 The success of an organization's research program cannot be judged by the outcome of a single project or small group of projects. It can only be assessed on the overall outcome of a large number of projects, i.e. on whether the fruits of the overall successes, including indirect benefits of technological and economic nature, outweigh the total costs of the research and development effort. This implies in effect that the success of the proposed R&D project should be judged retrospectively by the success of the

Government's industrial R&D program as a whole, and not exclusively (and narrowly) by the success of the R&D subprojects financed by the Bank. Similarly, the success of any particular subproject should be judged in the context of the overall success of the R&D program of the sponsor.

Major Features of R&D Subprojects

Infrastructure

Multi-Purpose Facility for Industrial R&D in the Negev

4.13 The Negev has been designated by the Government as the major region for extensive industrial development due to its proximity to natural resources and its present low level of development. A range of industrial enterprises has already been established in the area while many new ones are appearing. Industrial output of the Negev industries is projected to reach some US$500 million by 1978 compared with US$140 million in 1973. Provision of R&D facilities is viewed as part of the region's infrastructure.

4.14 The proposed expansion of existing facilities, to be undertaken by the non-profit R&D Authority of the University of Negev, would provide specialized R&D and other technical services not only to large industrial enterprises but also to firms whose size does not allow them to conduct their own R&D. The facility will also perform work for university laboratories on a contract basis. These services would in large part be an expansion of the Authority's program of contract research and services to industry. The explicit understanding with the Government is that the subproject facilities will be used only for non-defense purposes. Local industry shows a keen interest in the Authority's expanded research programs and facilities. In fiscal 1974-75, about half of the Authority's IL 9.4 million income will come from research and technical services. This relatively high proportion of earned income is a sign of good management and close relations with industry.

4.15 The proposed expansion facility consists of: (a) the establishment of a Unit Process Laboratory, containing multipurpose intermediate sized equipment, to scale up processes developed in the laboratory; the facility would allow an in-depth study of processes and products including costing and marketability; and (b) a Testing Service Facility to provide support for R&D and manufacturing, including some quality control. Service charges to industry for the use of the facility are expected to be sufficient to cover its operating costs. The prospects for this happening are good (see para 4.14). Management and staff of the R&D Authority are experienced and capable. More details on this subproject in Annex 21.

4.16 OCS has agreed to report annually on the Authority's degree of autonomy, activities, emphasis on contract applied research, budget, staffing, work program, project selection methods, and internal financial controls. OCS will also furnish regularly updated assessments of the likely demand by industry for R&D infrastructure facilities.

Pre-Commercial Development

4.17 Solar Ponds. The non-convecting pond is an innovative approach to the problem of collecting and storing solar energy. A layered shallow black-bottomed pool of salt water is set up so that the salt solution is maintained denser at the bottom than at the top. The absence of convection allows solar heat, absorbed by the more concentrated solution at the bottom, to be trapped there. The heat can be extracted for conversion into electrical energy or used directly. The project will be undertaken by the Scientific Research Foundation, and will be directed by Dr. H. Tabor, a pioneer in the field. It will consist of: (a) study of the technical problems and economic feasibility of commercial scale operations; (b) building and putting into operation a small scale prototype and providing a conceptual design for a desalination plant and for the production of electric power in the range of 10 megawatts.

4.18 The commercialization of this project is inherently speculative and a number of technological and economic questions remain to be resolved. Preliminary estimates by the Scientific Research Foundation indicate that power from solar energy could be produced at about 34 Mils/KW hr. This rate would be competitive with small power plants, usually diesel, but could not compete with conventional production of electrical energy in large installations. If successful, initially therefore it could be used for small-scale production of electrical energy and for direct use of low temperature heat in hot areas. With rising fuel costs, the proposed technique could lead to expanded use of this type of energy. More details in Annex 22.

4.19 Wax Production from Jojoba Beans. The jojoba (pronounced "ho-ho-ba"), is a desert plant producing beans which, when pressed, yield a liquid oil with unique and useful properties resembling those of sperm oil. By hydrogenation, the oil can be transformed into a wax with additional and unique properties.

4.20 The subproject consists of research intended to convert jojoba from a wild plant to a commercial crop in the Negev and to develop a family of chemical compounds of even higher commercial value than those presently derived from sperm oil and carnauba wax. The research will be carried out within the R&D Authority and will constitute an individual project budgeted separately from the core institutional support being provided to the Authority (see paras. 4.13-4.16). Extensive chemical tests of the products, under the auspices of the National Academy of Sciences in the U.S., have stimulated favorable interest.

4.21 The primary benefit of this project would be the ultimate establishment of an attractive agrochemical business, producing a wide array of valuable commercial products and using arid land of limited value. Preliminary estimates of market possibilities and production costs are encouraging. Details in Annex 23.

Commercial Prototype Development

4.22 Rural Telephone System. This project consists of the development of an electronic telephone system especially designed to provide a means of telephone communication to communities of 100 to 400 potential subscribers. This is a challenging commercial opportunity for a relatively small but sophisticated firm to capture part of a market that has not been a principal target of dominant suppliers of world telecommunications equipment.

4.23 The system will consist of an integrated package of an exchange, a multiplexer, and a radio link. The exchange will be compact, relocatable, modular, all-electronic, pre-packaged and pre-installed. Developed and developing countries have an increasing need for rural exchanges but the market now is dominated by a few big suppliers and is difficult to break into.

4.24 The R&D will be done by Tadiran, Israel's largest electronics manufacturer and a company with a proven record of success in the telecommunications field. Tadiran will design, assemble and test the prototype in its excellent facilities. Market studies will be integrated with design activities to assure precise knowledge of customer requirements, adaptation of the equipment to the clients' needs, and efficient sales promotion. When the development is complete, the company will manufacture the product in its own plants and would be willing to install plants in other countries. The financial (after taxes) and economic rates of return, if the project is successful, are estimated at 34% and 33%, respectively. Its association with the multinational firm of General Telephone and Electronics International will strengthen its international marketing capability, whereas the Government subsidy encourages this multinational firm to do part of its R&D in Israel. For details see Annex 24.

4.25 Prime Movers. This project consists of the development of a family of five prime movers (engines) with appropriate prototypes and market studies. They would be designed so as to be compatible with a variety of energy sources, such as solar, wood, waste products and geothermal. The items to be developed may include: (a) 1-5 horsepower village engine which could use wood, agricultural waste or biogas as a supplementary fuel; (b) engine for pumping drinking water; (c) 100-1000 watt power generator for rural TV educational systems and for local telecommunications; (d) 5-15 horsepower engine for locally assembled multipurpose tractor; and (e) conceptual design of a 1-10 megawatt turbogenerator for production of electricity from geothermal, solar or ocean thermal gradients.

4.26 The company, Ormat Turbines, Ltd., is a pioneer and technological leader in the field of Rankine cycle turbines, using organic working fluids. Some of its related products, which were developed from prior solar energy research, have given 8 years of reliable maintenance-free service in remote areas.

4.27 Major advantages of the proposed engines would be their high reliability, unattended and maintenance free operation, and use of non-conventional low cost fuels. The market therefore for the family of engines would be in

isolated areas where maintenance of diesel engines is difficult, or where conventional fuel is expensive or not readily available. A major problem in the product development will be to identify and define this market precisely, to eliminate product ideas which do not have a market potential, and to design a product line accordingly. Ormat's experience with and appreciation of the special requirements of developing countries should facilitate this market definition. The financial (after taxes) and economic rates of return of the project, if successful, are estimated at 41% and 43%, respectively. However, since the underlying technoeconomic and marketing studies at present lack the requisite sophistication and depth, Ormat will carry out initially a thorough study of product lines, while limiting engineering to aspects likely to be required in any case. This will allow time for a more precise definition of the proposed product lines before detailed engineering studies are undertaken. Further details on this subproject in Annex 25.

4.28 Tomographic Scanner. Tomography (from the Greek "tomos", a section, and -graphy), a new technique for using a computer and X-rays to locate tumors and other diseases, is thought to be one of the most important recent innovations in the field of radiology. Currently, there are two tomographs on the market and several more are known to be under development. This project, to be undertaken by Elscint Ltd., proposes to develop a more versatile and higher performance scanner than is currently available, by reducing the scanning time, enlarging the field of view of the scanner, and by reducing the price of the equipment.

4.29 Elscint, a well-managed, aggressive and financially sound enterprise, has an impressive record of product development. The largest part of the output will be exported, mostly to developed countries. Competition exists and is likely to increase. At the same time, entry of new firms in this field attests to the good market prospects of this type of equipment and adds to the justification for its development. The project will enable Elscint to build a competent product development team. The financial (after taxes) and economic returns of the project, if successful, are estimated to be 30% and 13%, respectively. Details in Annex 26.

The Risk Element

4.30 All R&D projects carry a measure of risk, in that satisfactory technical solutions may not be found for developing a commercial prototype, or solutions may be too costly, or there may be changes in the prospective market. The risks involved in the subprojects presented here are reasonable and taking them is an essential part of the Government's long-range strategy for industrial growth. These risks are as follows. The Negev R&D Authority is an infrastructure project and carries only the risk that the research and technical support services provided to local industry might not always lead to commercial results, or that the Authority might not be able to fully utilize its facilities and break even. This risk is inherent in the establishment of any new research undertaking; indeed, similar risks are involved in the establishment of any new institution. With the two projects involving "pre-commercial development", the risk is that the researchers may not succeed in developing a commercially viable technology for jojoba bean agriculture or

for solar ponds. These are normal risks for pioneer applied research projects of this nature. The projects are very promising, but many hurdles remain to be overcome before commercial success can be achieved. With the three commercial prototypes, the risk is of a different nature. The three Israeli companies must hold their own in highly competitive international markets involving sophisticated technologies. The risks in such efforts are high but necessary. The calculations in Annexes 24-26 show that rates of return for these subprojects are high but sensitive to relatively small changes in operating costs and sales revenues. This is normal in the launching of new high technology products and points to the need for constant review of the targeted costs and benefits. If the subprojects are successful, the potential financial results and technological spin-offs could be large in relation to the R&D investment. The decision to accept the risks is part of the ongoing appraisal procedure referred to earlier (paras 4.08-4.10). OCS will assess the extent and variation of these risks as development proceeds and, subject to Bank approval, will withdraw financial support from any subproject whose probability of success declines below a critical level. The Government concurs that not more than one substitution of a new subproject for any of those already approved by the Bank is contemplated, provided a convincing case could be made for it and that the initial appraisal of the substitute subproject would not pose serious expertise or manpower problems for the Bank.

Cost Estimates and Financing

4.31 Project Cost. Total project cost is estimated at IL 134 million (about US$22 million) over a five-year period, of which 38% would be in foreign exchange. A breakdown of expenditures for each subproject and details on the inflators used are presented in Annex 27. Estimated price increases are based on detailed analysis of price trends during the time of appraisal. Cost estimates for each R&D subproject are summarized below; they include an allowance of 54% for price contingencies. No provision was made for other uncertainties (e.g., delays, unforeseen technical problems, etc.), since their assessment in R&D projects would be extremely speculative.

Project Cost /1

Subprojects	IL Million			US$ Million			Foreign Exchange Component %
	Local	Foreign	Total	Local	Foreign	Total	
Multipurpose R&D Facility	29.0	20.7	49.7	4.8	3.4	8.2	41
Solar ponds	8.6	1.4	10.0	1.4	0.3	1.7	18
Jojoba Beans (liquid wax)	5.6	3.7	9.3	1.0	0.6	1.6	38
Rural Telephone System	12.7	10.9	23.6	2.1	1.8	3.9	46
Prime Movers	19.3	8.2	27.5	3.2	1.4	4.6	30
Tomographic Scanner	8.3	5.3	13.6	1.4	0.9	2.3	39
Total	83.5	50.2	133.7	13.9	8.4	22.3	38

/1 Includes 54% price contingencies.

4.32 Financing. Bank funding in the amount of US$5 million is proposed, which would cover about 60% of the estimated foreign exchange component of the total R&D expenditure of the proposed subprojects. Project financing would be provided by the following sources.

Project Financing
(IL million)

Subprojects	Sponsors	Loans	Gov't	IBRD	Total	Grant Element Amount	Grant Element % of Total Project Cost
Multipurpose R&D Facility	16.0	14.3	9.5	9.9	49.7	28.6	58
Solar Ponds	3.9	2.8	1.5	1.8	10.0	5.2	52
Jojoba Beans (liquid wax)	1.8	3.5	1.6	2.4	9.3	7.0	75
Rural Telephone Syst.	4.6	4.6	8.4	6.0	23.6	17.6	75
Prime Movers	3.2	10.6	8.0	5.7	27.5	17.7	64
Tomographic Scanner	4.1	1.3	4.9	3.3	13.6	8.7	64
Total	33.6	37.1	33.9	29.1	133.7	84.8	63
	----------US$ million----------						
	5.6	6.1	5.6	4.9 /1	22.3	14.0	63

/1 Including US$150,000 earmarked for "OCS Technical Assistance", total Bank funding amounts to US$5 million (see Table in para. 4.05 and para. 4.36).

The Bank funds would cover 22% of the estimated total R&D outlays over the period required for the completion of the subprojects; sponsors would be required to contribute from their own resources 25%, which is considered reasonable and within their financial means, and to borrow from investment banks another 28%; the Government would supply the balance of 25%. Since the amount of the grant element (see paras. 2.09 and 4.34) is estimated at IL 85 million (US$14 million), or 63% of the total cost of R&D expenditures for all proposed subprojects on average, the sponsors would in effect contribute only 37% instead of the 53% initially financed. The Government has agreed to provide the requisite funds to cover both the foreign exchange requirements of the subprojects over and above the part to be financed by the Bank, and the local currency requirements (grants) for all Bank-financed subprojects, as appropriate. In addition, the Government has undertaken to ensure the availability of funds for construction and equipment from investment banks.

Disbursement and Procurement

4.33 OCS Disbursement Procedures. According to current practice, which is to be continued, the contract signed between OCS and the sponsor indicates the intention of the Government to finance the project for the estimated period required for the completion of the proposed R&D, but disbursements are approved and effected only for one year at a time (usually projects take 2 to 5 years to be completed). Following the annual assessment of the technical progress made, the contract is renewed for another year and so on. There has been no adverse reaction to this policy of disbursement in annual tranches. In projects of national importance, such as those to be financed by the Bank, the review committees (see paras. 4.43-4.44) will recommend the extension of the contract every year, following a comprehensive review of the subproject (e.g. progress made, new developments in the researched field, changes in size of prospective markets, etc.).

4.34 The Government (OCS) will fund outlays on R&D in approved projects of national importance, including those to be financed by the Bank, in the following way. The Government will bear the entire cost of highly specialized equipment (a rather small proportion of the total expenditure on equipment). This type of equipment will be used free of charge by the sponsor until completion of the project, with the Government always retaining ownership. For other equipment, upon the recommendation of the OCS, the sponsor will receive a concessionary medium-term loan from an investment bank at 8% per annum. The sponsor, however, will be reimbursed by the Government for 80% of the cost of this equipment over a period of five years. Furthermore, the Government will assume the entire cost of supplies and services purchased abroad by the sponsor; salaries and related costs of the additional R&D staff the sponsor will hire; administrative expenses strictly related to R&D; and expenses for foreign travel of the sponsor's staff made in connection with the R&D. Funds for construction, for which Bank funds will not be used, will be provided from financial institutions at the OCS's recommendation at 8% per annum. The Government will ensure in the contracts with individual enterprises that, in successful cases, part of the profits--1% to 4% of sales for a period of 10 years, as judged appropriate by OCS 1/--will go to a special fund to support future research in projects of national importance. The proposed arrangement appears satisfactory and allows for flexibility in the light of experience and the financial structure and performance of the companies involved (see also para. 6.03).

4.35 Disbursement of Bank Loan. On submission of appropriate documentation, certified by the OCS, the Bank would reimburse the Government for the foreign exchange cost of: (a) imported equipment and materials; and (b) services obtained from outside the country and salaries and travel expenses of

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1/ As an order of magnitude, in case of success a charge of 3% on sales would imply a levy of US$10 million on Ormat, US$2.4 million on Tadiran, and US$2.7 million on Elscint over a period of ten years of commercial production on the basis of sales projections by the companies (in 1974 prices).

foreign experts, as required and up to the limit indicated in the Table in para. 4.05 for each subproject. An estimated disbursement schedule is given in Annex 30. This approach is recommended in view of the inherent uncertainties as to the ultimate success of the proposed subprojects and the desire to finance part of as many eligible subprojects as possible.

4.36 A sum up to US$150,000 may be allocated from the Bank funds (see Table in para. 4.05), with the Bank's approval, to cover the foreign exchange costs of consultants, travel and other equipment and services needed to enable the OCS to: (a) strengthen its institutional appraisal/supervision capability (see paras. 4.43-4.45) for projects of national importance, including those financed by the Bank; (b) undertake studies needed to evaluate the contribution of projects of national importance and other policies or programs sponsored or considered by the OCS, to the commercialization of industrial technology in Israel, including the possible application of such technology to related problems in other developing countries; and (c) enable OCS to resolve ad hoc problems expeditiously.

4.37 Procurement. Bank funds will not be used to finance civil engineering works, which amount to only US$1.4 million and involve three subprojects in different locations. R&D equipment is to a considerable extent specialized and proprietary. The individual items are of relatively small value and procurement is spread over a period of up to five years; bulking is not feasible. Furthermore, there is adequate representation of foreign suppliers locally to ensure competition. As at present, OCS would satisfy itself about the need for the equipment, the actual purchase and use, and its cost. However, OCS should require the applicant to request quotations for equipment from at least three suppliers if the value of each item is over US$20,000.

C. Project Implementation

The Project Unit

4.38 The project unit for the R&D component will be the Office of the Chief Scientist (OCS) in the Ministry of Commerce and Industry, which has been in existence for four years. The OCS has the basic responsibility of implementing the Government's policies for industrial R&D, and operating responsibility for administering Government industrial laboratories, the matching fund program, and the new program of R&D projects of "national importance". The functions of the OCS are described in Annex 28. An Organization Chart is attached as Annex 29.

4.39 Management. Professor Y. Yaakov, Chief Scientist since March 1974, has wide technical and managerial experience, provides competent leadership, and has an excellent understanding of the problems of industrial technology in Israel. His deputy, Dr. M. Zirin, also Director of the Industrial Research Administration, is experienced and capable.

4.40 Staff. OCS is presently understaffed but it is expanding. At the end of the last fiscal year (March 31, 1975), the permanent staff of professionals had increased from 9 to 13 by the addition of 2 technical experts (one of whom was appointed as Chief Technologist) and 2 economists. Moreover, as is current practice, OCS will continue to rely on part-time specialists who can be readily hired and for whose services suitable budgetary arrangements exist. Ability to hire specialists on an ad hoc basis increases the range of expertise OCS can have at its disposal. OCS can also draw on experts available at the Ministry of Commerce and Industry and in the Research Institutes it supervises. OCS's staff is experienced and well motivated. It is projected that in fiscal 1976, about ten additional professionals of various specialities will be recruited.

4.41 Accounting System. OCS's accounting system is rudimentary as it relies for this type of service on the Ministry of Commerce and Industry and, for audits of grantee enterprises, on a private firm of public accountants. However, steps are being taken to improve the situation, and arrangements to secure normal accountability on Bank-financed activities were agreed upon during negotiations.

4.42 Audit. OCS's activities are reviewed annually by the Internal Comptroller of the Ministry of Commerce and Industry. OCS's overall performance and financial operations are audited by State Comptrollers. It was agreed that the Government will furnish to the Bank within one month after publication the part of the Accountant General's (Ministry of Finance) annual financial report submitted to the State Comptroller dealing with OCS operations as well as any evaluation reports of OCS operations produced by the State Comptroller, with special reference to Bank-financed subprojects. Furthermore, the firm of public accountants employed by the OCS will also prepare an annual report for the Bank on OCS's activities, including recommendations for possible improvements.

Development of OCS's Organization and Appraisal/Supervision Capability

4.43 OCS's appraisal and supervision work needs to be upgraded. The Chief Scientist is cognizant of this and is setting up standing review committees, composed of up to seven experts, of which at least two will be OCS staff members. One of the latter will be designated to monitor each subproject, including those financed by the Bank. In the absence of a qualified OCS staff member to serve as monitor, OCS will appoint a staff member as assistant monitor and will seek an outsider as monitor, who will train and supervise the work of the assistant monitor. The members of the review committees will have technological, financial, marketing and business planning competence, and are expected to be drawn from universities, scientific institutes, the Government and the business community. Recruitment of qualified staff is OCS's major concern and will be reviewed by Bank supervision missions.

4.44 The review committees will scrutinize appraisal and supervision reports of R&D projects of national importance and will advise the Chief Scientist on their merit, being directly responsible to him. The establishment of review committees is an important step toward strengthening the

appraisal/supervisory capability of the OCS, and the Bank will follow closely the progress and quality of their work. Three such review committees, covering the fields of electronics, mechanical engineering and industrial crops, have already been established and will supervise four of the six subprojects to be funded by the Bank. Others will be set up for solar ponds and the R&D Authority of the Negev, and for other projects of national importance as necessary. Constitution of an appropriate review committee for a Bank funded subproject is a condition for disbursement of Bank funds.

4.45 The review committees will have responsibility for up to four projects at a time. The committee will review the feasibility study prepared by the sponsor and will agree with him on a development program schedule, which will serve as a yardstick for monitoring the progress. The sponsor will produce quarterly reports which will be reviewed by the monitor and by the Chief Scientist. As the project progresses, the committee, through the monitor, will be in frequent contact with the sponsor to review the technical progress made, the currently projected costs, changes in market conditions and price structures, technological advances in the field, etc. If targets are not achieved, the committee will recommend to the Chief Scientist either assistance to resolve the difficulties or termination of the project. The thoroughness of this review will increase as the OCS gains experience and, over the next several years, the OCS should evolve a greater capability to review proposals for the development of commercial prototypes according to principles of risk capital analysis. The committee is expected to meet at least quarterly and to review the quarterly reports and the comprehensive annual report to the Chief Scientist prepared by the monitor. Such quarterly and annual reports prepared for the Bank funded subprojects, including the committee's and the Chief Scientist's recommended action, will be submitted to the Bank. OCS has agreed to employ independent foreign consultants to review the progress of Bank financed subprojects, if the Bank so requests. OCS may also, in consultation with the Bank, employ consultants to assist it in appraising and reviewing other R&D projects of national importance (see also para. 4.36). Consultants' services are estimated at 25 man-months.

4.46 Two years after the completion of each R&D subproject, OCS will follow up and prepare a full report on the accomplishments of the R&D undertaken--whether the product was actually developed; market success, profitability, and export earnings of the product; market success in developing countries and evidence of benefit to them; evidence of benefits to Israel over and above the commercial success or failure of the particular product. The Bank will also receive and review these reports on the subprojects it financed. Furthermore, within one year after completion of all Bank financed subprojects, the OCS will prepare and submit to the Bank a comprehensive report assessing the overall impact of the R&D component.

4.47 To counterbalance the disproportionate influence of the academic scientists on Israeli science policy and to help determine priorities for R&D programs funded by OCS, the latter will establish a Policy Advisory Committee, which would include representatives of the business, Government and academic community.

V. APPRAISAL OF THE VOCATIONAL/TECHNICAL TRAINING COMPONENT

A. Educational System and Development Strategy In Israel

5.01 Israel has a well structured, technically oriented and efficiently run educational system. Compulsory education begins with kindergarten (age 5 years) and continues through eight years of primary education, or where the new "reform" system is in operation, to six years of primary education followed by three years of lower secondary education. Under the old system, still operative in two-thirds of the country's schools, secondary education extends over four years (grades 9 to 12) as compared with the new system of three years each in lower (grades 7 to 9) and upper secondary education (grades 10 to 12). The educational system is described in greater detail in Annex 31; an Organization Chart for vocational/technical training is attached as Annex 32; enrollments up to secondary level in 1973 are shown in Annex 33.

5.02 During fiscal years 1963 to 1972, total expenditures on education increased by about 20% per annum (Annex 34). Of the fiscal year 1972 recurrent expenditures (Annex 35), about 34% of the total (mainly at the primary level) is provided directly by the Government; local authorities account for 16% (mainly at the secondary level); and various non-profit institutions and private organizations supply the remaining 50% (mainly at post-secondary levels). The distribution of capital expenditures among the Government, local authorities and non-profit institutions is 12%, 34% and 54%, respectively.

5.03 Technical education is being emphasized at the secondary school level by the establishment of new multi-lateral secondary schools with industrial arts as a compulsory subject in the lower school and technical options provided in the upper school. About 65% of boys and 35% of girls are presently taking technical subjects either in the old technical secondary schools or in the new multi-lateral schools.

5.04 To meet the need for a skilled labor force able to contribute effectively to an expanding industrial sector (see para. 2.07), the Government has initiated action (a) to raise overall educational standards and (b) improve and expand training facilities and programs at the craft and technician levels. As part of this effort, the Government has prepared a program providing for an increase in the number of vocational training centers and trades taught, and the gradual replacement of the small and thus uneconomical centers now in operation by larger centralized institutions offering improved facilities and programs; all new centers will also be used for short-term up-grading and retraining courses. The Government's program and priorities for the development of vocational/technical training are soundly conceived; however, implementation continues to be constrained by limited financial resources and will need to be accelerated in order to meet the projected requirements for trained manpower.

5.05 In order to meet the current and projected demands for all types of adequately trained manpower (Annex 36) and of middle and high level technicians, particularly in industry and commerce (Annex 37), the proposed component would increase the existing training capacity of the project institutions by about 167% and 54% in vocational and technician training, respectively; the output of project institutions would be sufficiently increased to meet about 35% and 30% of the projected shortage of skilled workers and technicians for 1985. The explicit understanding with the Government is that the project facilities will not be used for military purposes.

B. The Proposed Vocational/Technical Training Component

General

5.06 The proposed vocational/technical training component would assist the Government in improving and expanding its system of vocational/technical training consistent with the country's socio-economic development strategy. Specifically, the items proposed herein would enable the Government to: a) replace existing uneconomical training centers with expanded regional facilities offering a wider range of training opportunities; b) improve the quality and level of courses at one existing training center and two technician institutes by replacing obsolete equipment; and c) increase emphasis on the training of skilled craftsmen and technicians for industry. The proposed institutions, consisting only of academic and communal facilities and equipment, are listed below, and further detailed in Annex 38; boarding accomodations and staff housing were not requested, consistent with the Government's policy of minimizing the additional costs of constructing and maintaining such facilities. Output from the proposed facilities would meet about 35% and 30%, respectively, of the shortage of skilled workers and technicians, projected for 1985.

Institutions	Grades	Student Places			Estimated Annual Output
		Existing	Added	Total	
Three technician/practical engineering institutes	13-14	1,400	760	2,160	1,630/1
Construction and equipping of the expansion of one institute (Beer Sheva) and equipment only for two institutes (Haifa and Jerusalem)					
Four vocational training centers	ungraded	510	850	1,360	1,825/1
Construction and equipping of the expansion of three centers (Haifa, Jerusalem and Holon) and equipment only for one center (Tel Aviv).					

/1 Combined output of day and evening classes.

Vocational Training Centers

5.07 Three of the four vocational training centers already exist and Bank lending would be utilized to provide instructional equipment and 10 additional classrooms, 7 laboratories and 39 workshops. The fourth center (Kiryat Hamelaka) will be relocated in an industrial building now being converted for training purposes and the project would provide for equipment only. The four training centers are located in the main growth regions of the country and would increase the number of training places to 1,360 by 1978, or about 167% over their present capacity, while making possible the replacement of three small obsolete and uneconomic centers.

5.08 The basic courses to be given at each center vary in length from 3 to 13 months according to the craft taught and to their designation as "youth" or "adult" courses. The former is normally concerned with boys or girls of 16 to 18 years of age who have completed nine to ten years of full-time day schooling. Depending upon family circumstances, youth trainees may be awarded small subsistence and travel allowances and exemption from course fees; adult trainees normally are 18 to 21 years of age and receive subsistence and travel allowances according to the course followed and personal circumstances.

5.09 Course offerings in the four vocational centers concentrate on metal work, mechanics, electricity/electronics, carpentry, needle trades and drafting. In addition, the centers are used for specialized up-grading and re-training courses and for seminars of shorter duration. In the above fields, vocational centers also offer apprenticeship courses (about 10% of total course offerings) requiring attendance from one to three days per week; however, most such courses are given in specially designated apprenticeship training centers.

Technician Training Institutions

5.10 Two of the three proposed institutions (Beer Sheva and Haifa) are already in operation but are in a period of transition from widely dispersed temporary facilities to more centralized accommodations. The third institution (ORT School of Engineering, Jerusalem) expects to operate in buildings now under construction by September, 1975. In all three cases, continuing phases of construction are planned. Under the proposed component, accommodations would be increased by 760 new places or about 54% over existing levels; the output of technicians and practical engineers on a double shift basis would increase by about 63% by 1980 from the present annual output of 1,000.

5.11 Courses leading to recognition as a "technician" are of one year's duration (two years in evening courses) and for senior technicians or practical engineers are of two years' duration (four years in evening courses). As part of the certification requirements for trainees, an additional six to twelve months are devoted to the preparation of a technical research project in their respective fields of specialization. Consistent with development objectives, the proposed project institutions will concentrate on training programs in electrical/electronics fields, mechanical, instrumentation and controls and automation technology.

Cost of the Vocational/Technical Training Component

5.12 The estimated cost and foreign exchange components of the various parts of the proposed component are summarized below and set out in Annexes 39 and 40.

Items	Israeli ₤ (millions) Local	Foreign	Total	US$ (millions) Local	Foreign	Total	%
Technician/practical engineering institutes (3)	16.3	13.0	29.3	2.7	2.2	4.9	47.1
Vocational training centers (4)	22.5	10.5	33.0	3.8	1.7	5.5	52.9
Base Line Costs (Subtotal)	38.8	23.5	62.3	6.5	3.9	10.4	100.0
Contingencies:							
Physical	3.6	1.8	5.4	0.6	0.3	0.9	
Price	21.0	6.0	27.0	3.5	1.0	4.5	
(Subtotal)	24.6	7.8	32.4	4.1	1.3	5.4	51.9
Total Project Cost	63.4	31.3	94.7	10.6	5.2	15.8	

5.13 Construction costs (Annex 39) were estimated on the basis of actual bids on similar recent construction in Israel and adjusted to reflect regional cost differences. Space standards are based on detailed schedules of accommodation consistent with curricula requirements. Equipment and furniture costs were estimated for each category of goods and detailed lists would be compiled during the design stage and presented for Bank approval prior to procurement. Use factors for project schools would be economical with all facilities being used on a double-shift basis.

5.14 Based on actual construction costs of similar facilities obtained from the Department of Public Works, project costs would include contingency allowances (Annex 40) for unforeseen physical conditions equal to 10% of the estimated costs of site works, construction and professional services and 5% for furniture and equipment. Estimated price increases during the implementation period are based on a detailed analysis of the construction cost index and price trends at the time of appraisal. From 1975 through 1977, site work costs are expected to increase annually by 20,15 and 12% for both local and foreign costs; local construction costs and professional fees would increase by 30, 25 and 20%, and the foreign exchange costs by 20, 15 and 12%. For furniture and equipment, local and foreign exchange cost increases are estimated at 12, 10 and 8% respectively. The total contingencies would amount to about 52% of base line costs or about 34% of total costs including contingencies.

5.15 The total foreign exchange component is estimated at $5.2 million or 33% of the total costs; the proposed funding of $5.0 million would meet 96% of the foreign exchange cost with the balance (consisting of $0.2 million for furniture) being provided by the Government. Foreign exchange costs were calculated as follows: site works, 10%; construction, 19%; professional services, 5%; furniture, 30%; and equipment, 95%.

5.16 At full capacity, the proposed institutions would require about US$5.7 million a year in operating costs, corresponding to about 2.1% of projected recurrent expenditures on education in fiscal year 1979 (Annex 41). In view of the high priority assigned to the expansion and upgrading of vocational/technical training, the Government can be expected to meet these expenditures, as well as its share of the capital costs.

C. Implementation and Disbursement

Project Administration

5.17 A Project Unit would be established within the existing structure of the Ministry of Labor (Annex 32) to implement and coordinate all aspects of the project. The Director of Planning and Organization in the Ministry's Department of Vocational Training is expected to assume the responsibilities of Project Director; the remaining professional and support requirements for project implementation would be carried out by existing staff now assigned to similar functions in on-going programs. The appointment of the Project Director, Equipment Procurement Coordinator, and Accountant would be a condition of effectiveness of the Loan Agreement.

Procurement

5.18 Civil works and equipment supply contracts, except for residual equipment, would be awarded in accordance with the Guidelines for Procurement under World Bank Loans; furniture would be locally procured and financed. Up to 20% of equipment contracts may be won by local bidders, including 10% (or US$300,000) in residual items. Local manufacturers of equipment would be allowed a preferential margin of 15% of the CIF costs of competing imports or the existing rate of customs duty, whichever is the lower. Bid comparisons would be made in accordance with the Bank's guidelines on the application of domestic preferences in bid evaluation. Items would be grouped to the extent practicable to form sizeable bid packages and to permit bulk procurement. The Project Unit would be responsible for all aspects of bidding on equipment and would coordinate with the Department of Public Works with respect to bidding on civil works. No foreign firms are expected to submit bids on civil works, given the relatively small size and widespread locations of project items and the well developed construction industry in Israel.

5.19 Total construction costs of the proposed component would correspond to less than 1% of the estimated value of public construction completed in 1974. An adequate number of qualified building contractors are available for the project and an appropriate pre-qualification system is in operation.

Disbursement

5.20 Disbursement (Annex 42) for equipment would be on the basis of 100% of the CIF cost or ex-factory price up to the amount of US$3.22 million which is the estimated foreign exchange cost, including all contingencies. About 18% of the estimated total cost of civil works, including professional services, would be financed by the proposed funding; these percentages would be adjusted as necessary to distribute disbursements over the period of implementation. About 10 man/years of professional architectural services would be required for design development and construction supervision.

Design and Implementation

5.21 Due to the urgent need for the extension of facilities included in the proposed project items, qualified consultant architects have been selected by the Ministry of Labor for preparing preliminary design studies in accordance with criteria acceptable to the Bank. Field supervision of projects would be conducted on a periodic basis by the consultant architects and on a daily basis by the participating institutions under the coordination of Public Works Department engineers and the Project Unit.

5.22 The constructing and equipping of project institutions is expected to be completed in about three years after the signing of the Loan Agreement (Annex 43). A one year period would be allowed for guarantees and closing of accounts following the completion of equipment installation. The closing date for disbursement would be June 30, 1979.

VI. THE PROPOSED LOAN - OBJECTIVES AND JUSTIFICATION

6.01 The proposed composite industrial credit project is expected to contribute to the implementation of the Government's industrial development policies, in part through a development finance type operation and in part through the funding of R&D and technical training, given the complementary role of these components. A loan to finance all three components in the amount of US$35 million will support high priority objectives and is justifiable and appropriate. The particular contribution of each component to the achievement of these objectives is discussed briefly below.

6.02 IDBI Component. The proposed funding of IDBI, to be on-lent on average at about 10-11% per annum, 1/ will support projects exclusively in the less-developed regions of the country (Areas "A" and "B") and export-oriented projects regardless of their location, 2/ in consonance with the Government's

1/ The Government is in the process of implementing its decision of partial indexation mentioned in para. 2.12 and, when implemented, it would be applied to IDBI's subloans.

2/ A firm is defined as export-oriented if it exports a minimum of 20%, 30% and 50% of its output according to its location in zones "A", "B" and "C", respectively.

development objectives. Furthermore, a major part of these projects would be in science-based industries which the Government is eager to promote. Thus, IDBI will continue its developmental role, being the most important financial instrument for implementing the Government's stated industrial policies. On these grounds, the proposed funding of US$25 million to IDBI appears fully justified. Bank funds will cover only a small part of IDBI's projected foreign exchange resource gap in the next two years (10%). IDBI would perforce have to continue, and to further intensify, its resource mobilization effort abroad with the same diligence as in the recent past. The funds will be used to finance the foreign currency component of fixed capital costs of private sector projects with demonstrable economic viability. Projects financed from the Bank loan will be located within the borders of Israel as of January 1, 1967, and will not be defense oriented.

6.03 The R&D Component. The industrial R&D component will enhance the developmental impact of the overall loan. It will assist Israel in making more effective use of its substantial body of scientists and technologists in export-oriented expansion of science-based industries and in the more intensive use of its limited natural resources. This addition to Government funds will provide the needed incentives to relatively small private firms to offset the risk of large losses inherent in attempts to commercialize new technology and to offset the dearth of risk capital in the country. On these grounds, the Government's decision to share up to 80% the R&D expenditures of the grantees appears justified. It is very doubtful that these projects would go ahead without Government support. At the same time, the grantees have a considerable stake in the proposal R&D program, in terms of own funds to be sunk, high opportunity costs of technical staff involved in the project, loss of prospective profits, past record of innovative projects, and prestige. It can therefore be reasonably expected that the grantees would do their utmost to achieve the best results.

6.04 Bank funding will also have institution building effects. It will help to further develop institutional mechanisms to link research activity to production and marketing functions at the enterprise level. The appraisal and supervision arrangement for OCS and the proposed set of subprojects should provide opportunities to the Bank to suggest changes and to introduce new approaches in the OCS's structure and operations, and thereby strengthen the appraisal/supervision capabilities of the OCS. This being the first R&D project, the Bank also stands to gain valuable insights in the appraisal and implementation processes. Furthermore, the product and process innovations to be developed under the funded subprojects can have important side benefits for other developing economies in the form inter alia of design and engineering services that are implicit in some of these subprojects (solar ponds, jojoba beans, rural telephones).

6.05 Based on rough and tentative cost and benefit estimates, the financial and economic rates of return for three of the proposed subprojects, if they are successful, were calculated; they are very satisfactory. Similar calculations for the multi-purpose facility of the Negev, the solar ponds and the jojoba beans subprojects were not undertaken, as they would not have been

meaningful. The tentative character of the cost and benefits estimates is underscored, since it should be borne in mind that the very purpose of the prototypes the sponsors would develop is to obtain the information needed to assess more accurately the manufacturing and financial viability of the sub-projects.

6.06 The Vocational/Technical Training Component. All proposed components are fully consistent with the Government's overall strategy and priorities for promoting greater efficiency and qualitative improvements in the area of vocational/technical training, increasing the types and levels of training opportunities and meeting the demand for a properly trained and sufficiently flexible labor force. These objective are soundly conceived. The project institutions would respectively meet about 35% and 30% of the projected shortage of skilled workers and technicians for 1985. The total amount of estimated expenditures would be directed specifically toward meeting the existing and projected manpower constraints, particularly in the industrial sector. The vocational/technical training component would also help reduce economic and social disparities by providing increased training opportunities for early leavers from the formal education system as well as for adult workers and the sizeable number of immigrants requiring retraining to enable them to be productively employed in a changing labor market.

VII. RECOMMENDATIONS AND AGREEMENTS REACHED

A. IDBI Component

7.01 IDBI continues to be a suitable, deserving and creditworthy borrower of Bank funds. It is expected to continue to play an important role in financing private industry in Israel. Although it might contribute only marginally to local currency resource mobilization due to constraining Government policy, it has been successful in raising resources from abroad. It is expected to continue to do so, with Government encouragement, and a Bank contribution will provide effective support in these endeavors. Bank lending of US$25 million is appropriate and recommended. The funds would be disbursed to finance: (a) 100% of c.i.f. cost of imported equipment; (b) 50% of the cost of imported equipment purchased in Israel; and (c) 20% of the cost of equipment produced in Israel from imported components.

7.02 As noted in paragraph 6.01, the funds going to IDBI will be part of a larger loan to the Government, which will include R&D and technical training components. They will be on-lent by the Government to IDBI for 15 years, including about 2 years of grace, under an agreement between the Government and IDBI the signing of which will be a condition of effectiveness of the Bank loan. There will be a separate Project Agreement between the Bank and IDBI covering the normal provisions and covenants for DFC loans.

7.03 IDBI will repay the Government, and the latter will repay the Bank, according to identical amortization schedules which will be flexible and will conform substantially to the aggregate repayment schedule of loans IDBI makes to its borrowers with the proceeds of the Bank funds. IDBI's sub-loans will have a maximum maturity of thirteen years, including an appropriate period of grace. An initial tentative amortization schedule was agreed upon during negotiations.

7.04 IDBI's continuing good record of operations permits the raising of its debt/equity ratio, as defined in the previous Loan Agreement, from 3:1 to 5:1, and of the secured (by floating charges) debt to equity ratio from 2:1 to 5:1. Similarly, the free limit should be raised from US$750,000 to US$1 million with an aggregate free limit of one-half of the amount relent to IDBI (as before); this should result in the Bank reviewing between six and ten projects, an appropriate number.

B. R&D Component

7.05 The proposed R&D project deserves the Bank's support in view of its significant contribution to the country's industrial development and institution building. To this end, Bank funding of US$5 million equivalent is proposed. This is a reasonable amount, given that the R&D component is the first of its kind to be undertaken by the Bank and in view of the element of risk involved; yet, it is sufficient to give the Bank a significant stake in this component. Bank funding will cover 60% of the foreign expenditures on imported equipment, materials and services. Bank funds will not be disbursed until an agreement satisfactory to the Bank has been entered into between OCS and the sponsors.

7.06 During loan negotiations, agreement was reached with the Government that:

(a) it will place at the disposal of the OCS the necessary funds to cover both the foreign exchange requirements over and above the part to be financed by the Bank and the local funds (grants), promptly as needed (para 4.32);

(b) it will ensure the availability of the necessary funds at investment banks to be drawn upon by the prospective sponsors of Bank-financed R&D subprojects for construction outlays and purchase of equipment (para 4.32);

(c) OCS will establish review committees to meet at least quarterly to assess the progress of each project assigned to them; they shall not have responsibility for more than four projects at a time; they will submit their reports to the OCS and the Bank. No disbursements would be made for a Bank-funded subproject until a review committee for it has been established and approved by the Bank (paras 4.43-4.45);

(d) OCS will establish a Policy Advisory Committee (para 4.47);

(e) before making any major change in the agreed research program in each subproject, OCS would seek the Bank's concurrence. In case of failure and consequent termination of subprojects, the undisbursed balance would remain available for possible reallocation;

(f) OCS will enter into contracts with sponsors whose research is supported by Bank funds providing that technologies developed directly or indirectly from such research will be licensed to developing countries under reasonable conditions. The sponsors will also agree that Bank support for R&D will not be represented as approval of technologies or products resulting from such R&D and will not be mentioned in product advertising or other promotional literature. Furthermore, in successful cases, firms will agree to contribute 1% to 4% of sales revenue for a period of ten years to a special fund to support research in projects of national importance (para 4.34).

7.07 The portion of the Bank loan for the R&D component would be repaid by the Government over 15 years, including five years of grace, given the long gestation period for R&D projects. The repayment schedule will be fixed and form part of the composite single repayment schedule for the entire loan.

C. Vocational/Technical Training Component

7.08 The proposed vocational/technical training component will help alleviate increasing manpower constraints both quantitatively and qualitatively. The project is suitable as a basis for Bank funding of US$5.0 million, to be repaid by the Government over 15 years, including a grace period of 5 years. The proposed funding, which would finance 96% of the estimated foreign exchange costs, would be equivalent to about 32% of the estimated total cost of the project. It will finance 100% of foreign expenditures or of ex-factory local expenditures for equipment, and 18% of total expenditures (representing the estimated foreign exchange component) for civil works, including professional services.

7.09 Establishment of a Project Unit and appointment of a Project Director, Equipment Procurement Coordinator and Accountant will be conditions of effectiveness (para 5.17).

7.10 The repayment schedule for the vocational/technical training component will be fixed and part of the composite single repayment schedule for the entire loan.

* * *

7.11 With the foregoing arrangements, this industrial development project is suitable for a Bank loan of US$35 million to be repaid over 15 years, including about two years of grace for IDBI and five years for the R&D and vocational/technical training components.

ISRAEL: Summary of Investment and Export Incentives to Industry

1. The Law for the Encouragement of Capital Investments 1/ distinguishes four categories of projects, as follows:

a. Approved Enterprise, in which are included new or expansion (of at least 50% increase in fixed investment or production) projects undertaking to export a minimum of 20%, 30% or 50% of their production, depending on whether they are located in a "A" zone (greatest development priority), "B" zone (less development priority), or "C" zone (other areas already developed). In particular branches of industry, export requirements may be even higher. On the other hand, in zone "A" investors may be exempted from the export requirements. These projects are entitled to cash grants, development loans, tax concessions, full exemption from duties on imported machinery and equipment and other indirect taxes on locally produced machinery, equipment and building materials, and deferment of fees (i.e., stamp fees, registration fees, capital fees, etc.).

b. Recognized Enterprise, referring to companies which manufacture products used as inputs to exporting industries, replace imports, meet defense needs, or introduce new technologies. These firms are eligible for tax concessions, development loans and deferment of fees.

c. Approved Investment, in which are included foreign currency equity investments in or long-term loans to enterprises that do not enjoy the approved status. Under this category, the investor is entitled to income tax and estate duty concessions, deferment of fees, and the right to repatriate his capital.

d. Approved Property, referring to foreign currency investments (by foreign residents) in immovable property in Israel. The investors are eligible for tax concessions and deferment of fees as in the case of Approved Enterprise (excluding exemption from indirect taxes and charges).

2. Grants 2/: Approved enterprises may received cash grants as follows:

1/ The Law is administered by the Investment Center.

2/ The right to investment grants is limited to projects to be approved until July 1, 1975, and implemented before June 30, 1977.

	Machinery and Equipment	Buildings and Site Development
Zone A	30%	20%
Zone B	20%	15%
Zone C	15%	10%

To be eligible to receive the grant, which only exceptionally may exceed the paid-up share capital, the enterprise must meet the following conditions:

a. Equity. The equity must not be less than: 30% of the fixed assets in Zone "A", 40% in zone "B", and 50% in zone "C". In addition, the Investment Center may require that the investment in equity cover a certain proportion of the working capital needs of the enterprise.

b. Export Quotas. In the case of new enterprises, the owners must undertake to fill the following export quotas: 20% in zone "A", 30% in zone "B", and 50% in zone "C". Major expansions (involving a 50 percent increase in production or more) are regarded as a new enterprise for the purpose of export requirements.

c. Conversion of Grant into Loan. In zones "B" and "C" investors may convert the grant, in whole or in part, into a loan 50% greater in value than the grant on the same terms and conditions as the loans extended by IDBI to approved enterprises in that zone.

3. Special Grant. To promote the purchase of locally manufactured equipment, approved and recognized enterprises are offered a special grant amounting to 15 percent of the value of such equipment.

4. Development Loans. Approved enterprises are also entitled to development loans repayable over a long term and at low interest rates. The amount of the loan can reach 45% of the fixed assets in zone "A", 40% in zone "B" and 33% in zone "C", while the interest rates charged are 8%, 10%, and 12%, respectively. However, the sum of the investment grant and loans cannot exceed 70% of the fixed assets in zone "A", 60% in zone "B", and 50% in zone "C". Development loans to recognized enterprises are extended on similar terms as to approved enterprises, except that the sum of the investment grant and loans cannot exceed 60% of the fixed assets in zone "A", 50% in zone "B", and 45% in zone "C".

5. Tax Incentives. Approved enterprises 1/ are exempt from income tax and pay only a reduced company profit tax (at 33%). These exemptions apply for the first five years that an enterprise has profits within the first ten years after the beginning of operations. Dividends paid out of profits during this period are also exempt from any further income taxes. During the period of benefits, profits from an approved investment are taxed at a maximum rate of 25%. Income from a foreign currency investment in an approved investment by a non-resident is tax free. The law also provides for accelerated depreciation. For the first five years of their use in an approved enterprise, machinery, equipment and buildings may be depreciated at a rate twice that normally permitted (and in cases of unusual wear and tear at a rate two and one-half times the normal). Furthermore, for the first five years (and possibly for another five years) from their establishment, approved enterprises are exempt from two-thirds of the property tax on buildings; they may be exempt for five years (in whole or in part) from local property taxes; and they pay only five-sixths of the property tax on equipment and business inventory for ten years. Approved enterprises are exempt from customs duties, purchase tax and are partly exempt from all other indirect taxes on equipment and building materials. Finally, the payment of stamp tax on the issue of shares and fees normally associated with registration of a new company may also be deferred for five years.

6. Science-based Industries. Science-based ventures, in addition to all other concessions granted by the Law for Encouragement of Capital Investment and the Law for the Encouragement of Industry, are entitled to Government assistance amounting up to 50% of their R & D expenses and a grant for the training of graduate employees. 2/ They can locate in special science-based industrial parks linked with institutions of higher technical education on a lease or ownership basis. Construction in such parks is granted the benefits of approved enterprises in zone "A", regardless of their actual location. The period of repayment for development loans varies between 14 and 20 years. Loans are extended for 50% of the cost of buildings.

1/ The tax concessions granted to recognized enterprises are the same as those extended to approved enterprises. However, recognized enterprises are not exempted from indirect charges and duties on imported machinery, equipment and building materials. The Investment Center though may extend such exemptions at its discretion.

2/ In general, the Government encourages and participates in the financing of industrial research projects, extending grants up to 50% of research projects, following their approval. R & D expenditures for the development of new products are tax deductible. Capital expenditure on R & D is tax deductible over three years. Imported scientific equipment is exempt from customs duties. For R&D projects of "national importance" see text paras 4.03, 4.34. Similarly, the Government provides financial assistance in the training of workers in new or expanding enterprises located in zones "A" and "B".

7. Working Capital Loans. In addition to the incentives in the form of tax benefits, concessional loans and grants mentioned above, the Government provides important working capital financing for exports and for projects in the "A" and "B" priority development areas. These are referred to as "directed credits." Export working capital loans are granted at 6% and the development area working capital loans at 13%.

8. Working capital financing for the development areas is provided to approved projects exporting at least 40% of their output as follows: (a) 30% of inventory requirements if the investor is located in zone "A"; and 20% of inventory requirements if the investor is located in zone "B".

9. Assistance to Exporters. To enhance the competitiveness of Israeli exports in the world markets, the Government grants refunds of indirect taxes and charges as follows:

% of Value Added (in foreign currency)	Refund of Indirect Taxes (IŁ per US$ FOB)
0 - 25	-
26 - 35	1.08
36 - 45	1.14
46 - 55	1.20
56 - 65	1.26
66 +	1.30

Moreover, exporting firms receive 100% refund of customs duties, purchase tax and other fees on raw materials or intermediary products, except for the 15% defense levy. Firms exporting at least 25% of total sales are partly exempted from property tax on equipment and inventory. The exemption relates to the percentage of sales exported and ranges from 15% to 80%. The Government participates up to 50% of the fob value of exports in transshipment costs incurred and extends travel tax exemption to manufacturing firms exporting at least US$100,000 a year (US$250,000 for general export firms). The Government also covers commercial risks of exports up to 85% and political risk losses up to 95%. Premia are partially refunded, the extent of refund increasing in proportion of the exports to total sales. New exporters may benefit from an IŁ 6,000 grant for the promotion of exports. Loans are available from the Export Promotion Financing Fund and may go up to 75% of the export expenses. They are extended at 6% for up to 2 years. Other governmental assistance for exports includes special subsidies to the textile industry and budgetary support to equalization funds for wool and synthetic textiles, plywood and leather.

10. Finally, approved export projects are also entitled to:

a. financing of 100% of the imported components of export products;

b. financing of 100% of raw materials purchased in Israel;

c. financing of 100% of short-term export credit granted by the exporter.

11. According to the Law for the Encouragement of Industry (1969), industrial enterprises (except those with an approved or recognized status) may pay 15% income tax (instead of 30%) if they elect to reinvest their profits. Also under this Law, an enterprise is entitled to accelerated depreciation on locally produced machinery and equipment over four years (40% on the first year and 20% in subsequent years) and on imported machinery and equipment over six years (25% for the first and second years and 12.5% thereafter). Approved/recognized enterprises have the option to choose the form of accelerated depreciation for which they may apply.

ISRAEL: Interest Rate Management and Its Implications

1. The prevailing interest rate structure does not reflect actual market conditions. With the country's financial resources centrally controlled, the Government plays a major role in the distribution of funds which, in turn, gives it a powerful influence over the direction of private investment. Industrial enterprises perforce have become dependent on concessionary funding (to the tune of 58% of their investment costs), channelled through financial institutions under Government directives. As a result, interest rates perform neither an intra-industry nor an inter-industry allocative function. This does not imply that project selection has suffered and that costs and benefits to the economy of the directed investments have been ignored. Industrial projects are approved after careful evaluation by the Investment Center for their conformity with the national Industrial Plan. Such an approval is a precondition for the enterprise to receive development loans and the other incentives the Center administers. Furthermore, industrial projects are appraised for their financial and economic viability, the latter assessed by calculating the cost to the economy of the foreign exchange earned or saved and comparing it with the effective exchange rate. Thus, the subsidy provided by the low interest rate is not indiscriminate, in that the loans are granted only for investment in industries the Government desires to promote. On the other hand, the indexing of principal and interest on savings and Government bonds appears to have contributed significantly to the resource mobilization effort of the Government.

2. Low interest rates, particularly for loans to less developed regions at 8% and 10%, are part of the Government's incentives package to increase the attractiveness and thus bring forth the large volume of industrial investment necessary to achieve its developmental objectives (see para 2.10). In addition, low interest rates create a bias in favor of capital-intensive techniques, which embody modern technology, help alleviate the chronic problem of labor shortage, increase productivity and enhance the competitiveness of projects. Finally, the incentives, including the low interest rate, offset in part the relatively high taxes Israeli firms have to pay.

3. The prevailing 12% lending rate under present rates of inflation (40% in 1974) certainly results in a negative real interest rate. Also, it is out of line with returns on savings (4% with principal and interest linked to the cost of living index) and time deposits which yield 14-15% (unlinked). But current unprecedented inflation rates, a worldwide phenomenon, make it hard to determine future trends of real long-term interest rates. The annual average price increase in Israel from 1955 to 1972 was 6%, while from 1965 to 1970 only 4%. It was only in 1973 and 1974 that prices in Israel rose sharply - due in part to world inflation and in part to Israel's emergency situation. Given the historical price behavior and the fact that the Government has taken stern measures to curb inflation (see para. 2.04), it is reasonable to expect that the recent price increases will not be a long-term feature of the Israeli economy and that in the long run a lending rate of 12% will lead to a positive real interest rate. Furthermore, the recent Government

decision that, in loans to Area "C" (12% lending rate), cost of living increases in excess of 20% will be added to the principal, safeguards against excessive subsidization and forces borrowers to pay a more realistic price for the funds they use. Also, in the long haul, a 12% on-lending rate should cover the exchange risk on foreign borrowings (borne by the Government. 1/

4. Subsidization of lending rates could conceivably be avoided by indexing industrial loans, 2/ a system which the Israelis had applied in the past. However, their experience was not satisfactory and the system was dismantled in 1963 due to serious administrative and economic disruptions. 3/ A more overriding reason was the Government's concern that indexing of industrial loans, by ushering in an uncertainty as to the actual future cost of capital, would adversely affect industrial investment. Similarly, the Government is unwilling to pass on to the borrower the foreign exchange risk on grounds that this may also have a dampening effect on industrial investment.

1/ In return for assuming the foreign exchange risk, the Government allows a bank a spread of only 1-3/4%, the excess being paid to the Government.

2/ It is noteworthy that a recent Bank paper concluded that "the review leads to a similar agnosticism on the effects of indexing on the volume of saving, efficiency of investment allocation and the operation of financial institutions." Index-Linking of Financial Contracts: A Survey of the State-of-the-Arts, Bank Staff Working Paper No. 192, November 1974.

3/ From the mid-1950's until 1963, most loans extended by the financial institutions were linked to the U.S. dollar or the consumer price index. After the 1962 devaluation, the linking of new loans to the dollar was discontinued, while for a large part of the existing loans the dollar linkage was converted into a cost of living index link. Concerning loans to industry (and agriculture), in December 1963 borrowers were given the option between linking the loans to the consumer price index and paying an annual premium of 4% over and above the normal interest of some 8% per annum, thus bringing the effective interest rate to 12%. The majority of borrowers chose unlinked loans, expecting that the index would rise in excess of the premiums. (IDBI effectively discontinued linking loans since 1964). In 1967, the lending rate was reduced from 12% to 9% (6.5% and 8% for Areas "A" and "B", respectively) to stimulate industrial investment. Loans to the housing and construction sectors also have ceased to be linked to the cost of living index.

5. In light of Israel's singular circumstances as discussed in paras 2.12-2.14 and Annex 2, paras 1-4, and for the purpose of the proposed industrial development project, the interest rate management by the Government appears to be appropriate. The recent changes in the interest rate structure and partial indexing (paras 2.12, 2.14) indicate that the Government keeps the interest rate question under review.

ANNEX 3

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Shareholders as of October 31, 1974

	Amount (IL '000)		% of Total
Ordinary "A" (Voting) Shares			
Government			
The State of Israel	3,925	3,925	26.00
Israeli Private Investors			
Hevra Lehashkaot Shel Israel Discount Bank Ltd.	250		
Otzar Letaasiya B.M.	1,050		
Investment Fund of Hevrat Haovdim Ltd.	1,560		
Hevra Lerishumim Shel Bank Leumi Le-Israel B.M.	1,800		
Israel Discount Bank Limited	1,405		
Israel American Industrial Development Bank Ltd.	1,060		
Workers Bank Trust Co., Ltd.	1,000		
Clal Israel Investment Co., Ltd.	250		
Hevra Lehashkaot Shel Export Bank Limited	250		
Israel Industrial Bank Limited	250		
The Israel Central Trade & Investment Co., Ltd.	250		
The Weizman Institute of Science	250		
Manufacturers Association of Israel	250		
Hevra Lerishumim Shel Israel Discount Bank Ltd.	130		
Other Shareholders	20	9,775	64.73
Foreign Investors			
Israel Investors Corporation	500		
Edith & Isaac Wolfson Charitable Trust	250		
Artina Trading Trust (reg) Vaduz	150		
P.E.C. Israel Economic Corporation	250		
The Eli Wishnick Foundation	250	1,400	9.27
		15,100	100.00

Shares Other than Ordinary "A" Shares

	Groups of Shareholders				
	Government	Private Domestic	Foreign	Mixed 1/	Total
	(IL '000)				
Preferred Ordinary	-	1,551	-	8,449	10,000
Ordinary B	134,900	-	-	-	134,900
Preference A	50,500	-	-	-	50,500
Preference B	611	-	892	1,350	2,853
Preference C	-	360	14,366	15,874	30,600
Preference CC	-	7	15,437	14,556	30,000
Preference CC1	-	-	7,752	44,291	52,043
Preference D	3,707	188	41,392	3,756	49,043
Total	189,718	2,106	79,839	88,276	359,939
Percentage of Total	52.71	0.58	22.18	24.53	100.00

1/ Entities owned jointly by domestic and foreign shareholders.

Source: Industrial Development Bank of Israel, Ltd.
November 1974

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Board of Directors and Committees as of October 31, 1974

(A) Members of the Board of Directors

	Name	Affiliation
	Chairman	
1.	Dr. ZVI DINSTEIN 1/	Government Advisor on Petroleum and Energy
	Vice-Chairmen	
2.	M.B. GITTER 2/	Member, Board of Directors of Israel Discount Bank Limited
3.	ERNEST ISRAEL M. JAPHET 2/	Managing Director, Bank Leumi Le-Israel B.M.
4.	MOSHE OLENIK 2/	Joint Managing Director- Bank Hapoalim B.M.
5.	MORDECHAI ZAGAGI 1/	Director of Companies

Other Members Representing the State of Israel	-	12
Other Members Representing Private Israeli Investors	-	28
Members Representing Foreign Investors	-	5
Total membership	=	50

Theoretical Membership

(A holder or holders of 250 Ordinary "A" shares is entitled to appoint a Director).

	Entitled to Appoint	Actual Appointment
State of Israel	15	14
Private Israeli Investors	39	31
Foreign Investors	5	5
Total	59	50

1/ Represents the State of Israel
2/ Represents private Israeli investors

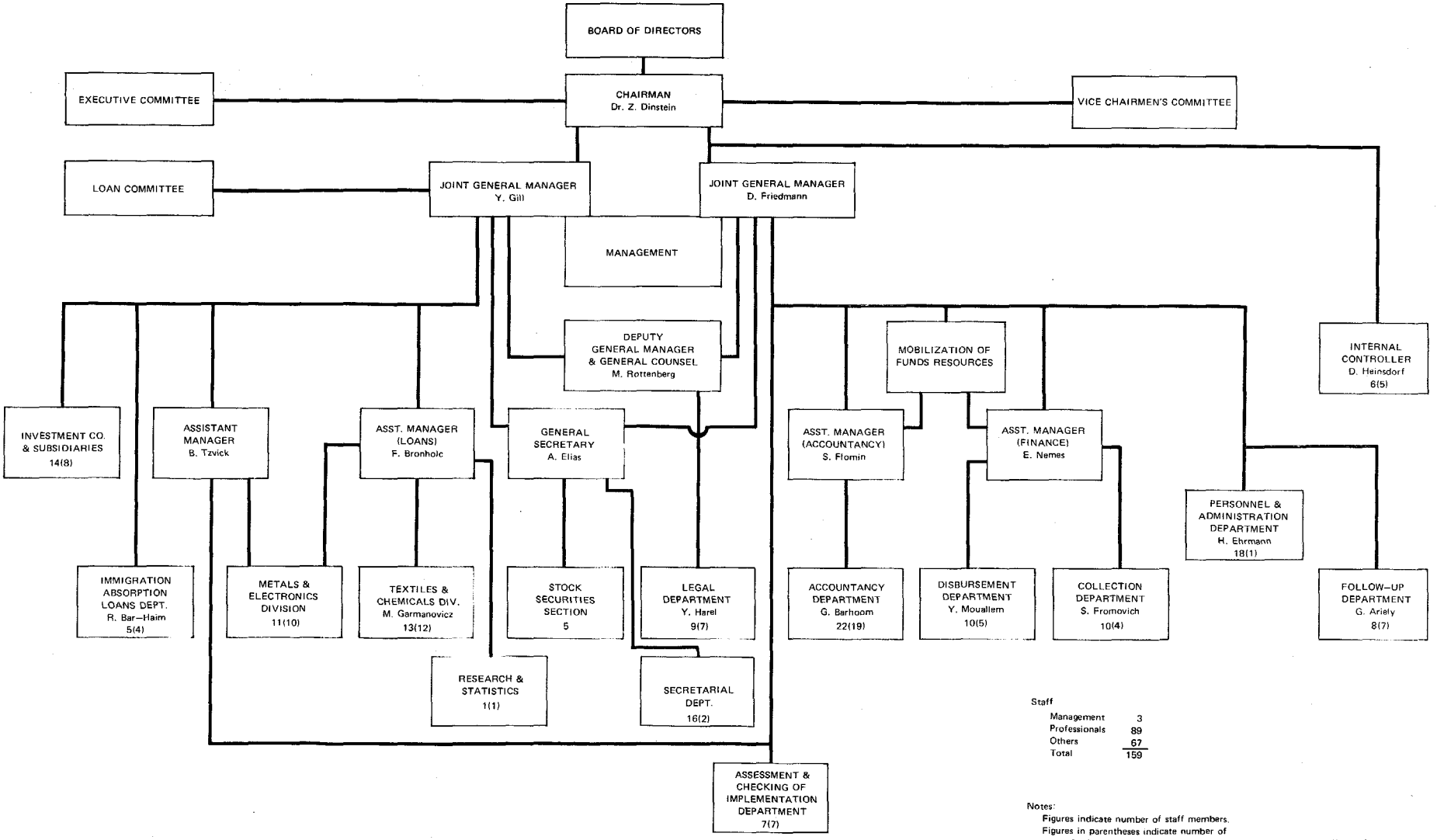
Source: Industrial Development Bank of Israel, Ltd.
March 1975

(B) Powers and Duties, Chairmen, and Members of Committees

	Executive Committee	Vice-Chairmen Committee	Loan Committee
Powers and Duties	All powers of the Board, except to elect the Chairman and Vice-Chairmen of the Board and to appoint the General Manager(s). Reviews and decides on loan applications beyond the authority of the Loan Committee	Major administration and personnel matters and a sounding board for policy matters likely to prove controversial.	Reviews and decides on loan applications up to cumulative total of IL1,000,000 for individual projects.
Chairman	The Board Chairman or, in his absence, the Executive Vice-Chairman.	The Board Chairman or, in his absence, the Executive Vice-Chairman	Both General Managers
Members	18 Board Members or their alternates.	The Board Chairman, the Vice Chairmen and the General Managers.	14 Board members or their alternates.
Frequency of meetings	Twice a month.	Once a month, or as necessary.	Once a week.

Source: Industrial Development Bank of Israel, Ltd.
March 1975

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LTD.
ORGANIZATION AND STAFF CHART
As of March 1, 1975



Staff

Management	3
Professionals	89
Others	67
Total	159

Notes:
Figures indicate number of staff members.
Figures in parentheses indicate number of professional staff.

World Bank–9764

ANNEX 5

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

IDBI's Subsidiaries

1. IDBI and the Government each own 50% of the share capital of the Investment Company for Industrial Development in Israel Ltd. (IC). IC in turn owns all the share capital of four companies. One of those, the Industrial Finance Corporation Ltd. (IFC), owns 100% of the share capital of yet another company. These subsidiaries are described in what follows:

Investment Company for Industrial Development in Israel Limited

2. The IC was established in 1963 to take over most of the equity investment activity of IDBI. This move was to enable IDBI to remain exempt from the U.S. Securities and Exchange Commission's "investment company" classification and thus avoid substantial restrictions on its efforts to raise funds in the U.S. capital market. Initially 75% of IC's share capital was held by IDBI with the Government holding the remaining 25%. In its first years IC limited its activities to rescue operations of IDBI's clients in trouble.

3. Following a 1972 agreement, IC's share capital was increased from IL 20 million to IL 30 million and the Government became an equal owner with IDBI. In return, the Government-owned IFC (see paragraphs 5-9 below) became a wholly-owned subsidiary of IC. Under this new arrangement IFC took over the equity investment role of IC and IC became only a dormant holding company.

Deco Investment Company Limited
Hevra Clalit le-Neyarot Erech B.M.
Pituach Veneemanuth B.M.

4. These three companies, wholly-owned by IC, were established at the Government's request to help maintain stable markets in various types of bonds and stocks through trading activities. Only Deco is active now, though it no longer is concerned with maintaining a stable market. It invests its own capital (IL 6 million) in securities in order to make a profit. The other two companies have not been dissolved as IDBI feels there may be a use for them in the future. In the meantime their equity capital (IL 20,000 for Clalit and IL 4.5 million for Pituach) has been lent back to IC.

Industrial Finance Corporation Limited

5. As noted above, the IFC, wholly-owned by IC, is now the entity in the IDBI group which is active in equity investments. It also makes loans, including loans for working capital. In general it confines its activities to companies experiencing financial or management problems.

6. Since its inception in 1968, IFC has approved 152 projects involving equity investments of IL 17.9 million and loans of IL 56.2 million. On June 30, 1974, its outstanding equity portfolio totalled IL 5.3 million and its outstanding loan portfolio, IL 20.4 million (excluding its investment in its subsidiary -- see below -- and net of provisions for losses). Of the 64 companies involved, 43 were located in the central area of Israel, roughly corresponding to Area C. Thirty companies had received less than IL 100,000 from IFC.

7. IFC's involvement with its clients includes managerial as well as financial assistance. It will, for example, assist a client to find and hire suitable people to strengthen management. It keeps a close watch on all its clients and has had to wind up only three companies since it began operations (all fully covered by loss provisions).

8. IFC pays no dividends, reinvesting its profits in its business. Besides its share capital of IL 16.0 million, it has retained earnings of IL 3.4 million, a loan without term of IL 43.6 million from the Government and long-term loans from IDBI (Il 10.2 million), IC (IL 1.3 million), the Government (IL 2.5 million) and the Negev University (IL 1.0 million).

9. IFC's project pipeline will fully commit its available resources. Because its activities consist basically of rescue operations, it cannot forecast its resource needs with any great accuracy. However, it estimates that it will need some IL 20-30 million of new resources to cover its operations over the next two years (1975-1976). It is exploring with IDBI and the Government how these funds might be made available (one thought is an increase in IC's share capital, with IC lending the funds down to IFC).

Plant and Machinery for Industry Limited

10. This company (PMI) was established in 1969 as a wholly-owned subsidiary of IFC to acquire equipment for rental at subsidized rates to enterprises operating for the defense authorities. This reflected the Government's desire to channel more defense related jobs into the private sector. On June 30, 1974, IFC had invested IL 20,000 in PMI's share capital and had lent PMI IL 31.4 million from its own resources. Under a contract between IFC and the Government, entered into before IFC became an IC subsidiary, these funds were provided by the Government and are on lent to PMI at no profit to IFC. Future funding will not come from the Government but through IDBI as well as IFC; IL 20 million loan has been agreed to, of which IL 10.2 million has already been made available to PMI.

11. PMI operates at no profit, with the Government covering any losses. If an enterprise assisted by PMI is no longer needed and wound up, the Government will take over the rental contract. The Government determines what enterprises are to be established and assisted by PMI, providing the funds needed.

ANNEX 7

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Computer System

"Early Warning" System

1. The "early warning" system has been in operation since late 1973. It is based on the three most recent audited financial statements and computes six financial ratios which are weighted to give a risk index. These ratios and their weights are:

Ratio	Weight
Equity capital and reserves/total assets	25
Profit trend for the last three years	25
Current ratio	20
Inventory/production value	10
Receivables/sales	10
Net working capital/production value	10
	100

The last three ratios are computed as differences from the average for the industry involved as different standards may apply to different industries.

2. Some 850 of IDBI's clients are covered by this system. IDBI's experience indicates that the system is able to identify about half of the problem projects, while rarely falsely labeling a sound project as having problems. The make-up of the risk index, especially the weights assigned the ratios, is under review in an attempt to improve its predictive powers. Despite its imperfections, this system is extremely helpful in allowing the small staff to follow-up on a very large number of clients.

Information System

3. IDBI has completed the preparatory work for a comprehensive information system which will enable it to obtain information on all aspects of its own operations, to follow up project implementation, and to review the performance of its clients. IDBI is also developing a system which would enable it to computerize its appraisal work and make possible forecast based on different values of parameters, including sensitivity analysis. A research and statistics unit has been established and a qualified statistician has been hired to head the unit.

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Loan Operations

1. A summary of IDBI's loan operations is shown in Table 1 and the sectoral distribution of outstanding loans is shown in Table 2. IDBI's loan portfolio is quite diversified with textile works accounting for the largest concentration (18%) followed by chemicals and oil products (11%) and metal products (8%). About 5% of IDBI's outstanding loans have been made to the construction sector (construction firms and construction in industrial estates for small-scale industry and for science-based industry, etc.). The analysis of loans approved (Table 3) also indicates that IDBI has not concentrated its efforts on any particular industrial sector; in no year did approvals to any one of the seven branches delineated in Table 3 exceed 28% of total approvals.

2. The average size of IDBI's loans has been increasing over the years, reflecting a shift towards larger-scale plants and higher capital intensity due to the adoption of increasingly more sophisticated techniques. During 1973 the average size of loans approved was IL 1.15 million compared to IL 480,000 during the period 1958-1968. However, the smaller borrower has not been neglected; over 60% of the number of loans approved in 1973 were for amounts of IL 500,000 or less (80% for 1958-1968).

3. The repayment period of IDBI's loans has been getting shorter in recent years. Whereas during 1958-68 maturities of 6-8 years accounted for 22% and those of 9-13 years for 53% of the amount of loans approved, during 1969-74 the percentages were 48% and 30%, respectively. This trend reflects two factors. In recent years IDBI has been borrowing on shorter terms, and has reduced its lending terms to keep the two in line. Also, IDBI has accepted the suggestion of the Government that the repayment period of its loans should reflect the accelerated depreciation allowed approved projects under the incentive law. Loans carrying 15-20 year terms (including five years of grace) are made only to industrial estates specializing in science-based industries. The recent trend to shorter maturities is likely to be reversed again since IDBI's pipeline contains a number of major projects of long gestation period which will require longer loan maturities.

4. IDBI classifies its loans by purpose into four categories: new projects, expansions, completions and miscellaneous. During 1973 the distribution of the number of approved loans between these categories was 20%, 47%, 22% and 11% respectively. The first two categories are self-explanatory. In recent years more expansion projects have come forward than new ones, reflecting investors' efforts to consolidate and/or enlarge existing plants and to replace equipment. The third category, completions, reflects IDBI's practice of intentionally not attempting to take inflation totally into account when estimating the cost of projects. Given the recent high level of inflation in Israel and the world, IDBI feels that it is too difficult to do this with

any precision. Instead, IDBI covers cost over-runs with a second loan. These completion loans, therefore, represent loans to both new and expansion projects. Included in the miscellaneous category are loans for such projects as a standby generator for the Eilat City ice plant, ecological equipment for cement mills, and other operations which cannot be classified in one of the other three categories.

ANNEX 8
Table 1

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Summary of Loan Operations 1968 - June 30, 1974
(IL Millions)

	1968		1969		1970		1971		1972		1973		Jan.-June 1974	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Applications approved	279	164.8	258	278.3	309	200.6	386*	457.5*	406*	385.6*	392*	450.6*	166*	286.9*
Contracts signed for loans	313	175.3	311	257.3	243	197.7	379	267.8	419	366.1	344	401.9	172	269.4
		Amount		Amount		Amount		Amount		Amount		Amount		Amount
Disbursements		128.3		206.4		244.5		331.2		431.0		401.3		194.3
Undisbursed at the end of the period		175.3		230.1		244.6		405.6		429.3		458.7		617.2
Repayments (excluding linkage increments)		65.5		87.2		98.4		101.4		135.0		166.7		100.2
Outstanding at the end of the year (excluding linkage increments)		648.0		767.6		913.7		1,143.5		1,439.5		1,674.1		1,768.2

*/Not including deposits with Israel Agricultural Bank Ltd. and Yaad Agricultural Bank Ltd., earmarked for loans to various agricultural Settlements, as follows:

1971 - IL 17.3 million
1972 - IL 15.4 "
1973 - IL 6.9 "
1974 - IL 7.7 "

Source: Industrial Development Bank of Israel, Ltd.
November 1974

ANNEX 8
Table 2

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Summary of Loans Outstanding by Industrial Sector
(IL '000)

	December 31, 1972	December 31, 1973	June 30, 1974
Lime and stone quarries	62,799	97,572	107,537
Food products	96,907	112,916	119,538
Textiles works	287,953	357,248	357,966
Garments manufacturing	13,456	15,481	15,517
Wood products and furniture	26,103	29,066	29,361
Paper and paper products	21,095	19,314	28,027
Printing and publishing	15,653	14,735	15,438
Leather and leather products	5,229	7,250	7,802
Rubber and Plastics	84,775	99,088	96,391
Chemicals and oil products	196,789	213,468	221,650
Non-metallic mineral products	24,163	20,131	28,746
Basic metal industries	51,080	56,233	55,614
Metal products	141,910	156,678	165,768
Machinery	11,981	11,429	10,107
Electric and Electronic equipment	49,005	65,775	74,858
Transportation vehicles manufacturing	4,715	4,247	3,991
Glass, Ceramics pottery and Bricks	24,983	27,870	28,976
Public Utilities - Electric Company	126,169	146,378	140,925
Other Utilities	60,051	67,756	76,317
Aircraft industries	56,176	54,697	53,935
Industrial constructions	67,117	96,206	108,835
Various other loans	93,971	108,435	114,094
Cut and raw diamonds	166	152	142
Deposits with local banks for granting of loans	70,976	91,546	97,915
Debt of Government to the Bank for linkage increments on loans	8,290	-	-
	1,601,512	1,873,671	1,959,450
Provision for doubtful debts	10,800	15,200	15,587
Balance of loans as per per Balance Sheet	1,590,712	1,858,471	1,943,863

Source: Industrial Development Bank of Israel, Ltd.
November 1974

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Analysis of Loans Approved
(IL Million)

	1958 - 1968		1969		1970		1971		1972		1973		Jan.-June 1974		Cumulative 1958-June 30, 1974	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
A. Industrial Branch																
Paper and printing	116	51.0	13	10.7	10	5.7	24	11.6	19	6.4	25	16.4	11	15.5	217	116.7
Non-metallic minerals	188	127.7	13	9.7	19	9.5	28	80.5	32	22.4	40	71.6	8	25.4	328	346.8
Food and tobacco	386	134.2	36	26.1	36	19.1	61	28.8	70	53.8	52	39.1	23	27.5	663	327.9
Chemicals and rubber	243	145.5	28	83.1	30	32.3	41	88.1	62	39.4	49	42.6	26	75.6	480	506.6
Metals	457	170.2	60	66.7	88	51.9	79	109.6	96	107.6	90	79.2	41	33.6	912	618.8
Textiles and leather	430	300.7	49	33.0	51	53.3	47	71.3	68	75.7	60	92.3	22	37.8	727	664.1
Miscellaneous	490	179.3	59	49.0	75	28.8	106	67.6	59	80.3	76	109.4	35	71.5	896	585.3
TOTAL	2,310	1,108.6	258	278.3	309	200.6	386	457.5	406	385.6	392	450.6	166	286.9	4,223	3,166.2
B. Geographical Location																
Galilee	248	126.5	36	16.2	35	19.6	49	26.2	57	39.2	46	36.5	20	13.6	491	277.9
Valleys	239	90.0	22	14.3	28	12.1	23	48.2	24	37.7	25	37.1	7	22.8	368	262.2
Jerusalem	158	51.8	19	30.1	23	14.9	39	72.3	33	20.0	33	38.6	16	31.7	321	259.4
North Negev	191	93.2	16	23.8	12	17.1	18	14.0	31	21.3	30	53.3	9	16.5	308	239.4
South Negev	208	171.5	26	83.2	24	32.7	26	44.6	48	45.1	41	77.3	22	48.4	394	502.2
Development Area	1,044	533.0	119	167.6	122	96.4	155	205.3	193	163.3	175	243.0	74	133.0	1,882	1,541.1
Sharon	278	69.4	32	24.5	23	15.4	43	22.5	48	27.3	46	33.3	30	36.5	501	228.9
Haifa	251	190.4	20	26.1	32	15.8	44	61.1	39	86.8	37	38.8	19	55.6	440	473.7
Shomron	165	74.7	20	17.2	22	8.7	24	33.4	22	22.1	20	30.7	11	12.8	284	199.6
Tel-Aviv Yafo	312	113.5	38	17.8	46	11.5	55	27.3	53	24.2	47	35.6	14	18.6	564	248.5
The South	260	127.6	29	25.1	64	52.8	65	107.9	51	61.8	67	69.2	18	30.4	552	474.4
Out of Development Area	1,266	575.6	139	110.7	187	104.2	231	252.2	213	222.3	217	207.6	92	153.9	2,341	1,625.1
TOTAL	2,310	1,108.6	258	278.3	309	200.6	386	457.5	406	385.6	392	450.6	166	286.9	4,223	3,166.2
C. Size																
Up to 50,000	532	15.7	21	0.8	23	0.9	40	1.4	29	0.8	26	0.8	5	0.2	674	20.6
50,001 - 100,000	404	31.3	24	1.9	52	4.2	41	3.2	48	3.6	49	3.9	12	0.8	631	49.3
100,001 - 250,000	565	96.8	71	13.6	75	12.3	90	15.4	105	17.7	83	14.0	33	5.7	1,023	175.4
250,001 - 500,000	357	133.0	66	23.8	70	25.5	91	33.2	84	30.5	86	32.4	30	10.7	783	288.7
500,001 - 1,000,000	220	163.1	28	19.8	45	33.5	56	42.1	58	40.9	52	37.2	29	20.1	486	354.9
1,000,001 - 3,000,000	)	)	)	)	37	60.5	40	71.3	60	100.6	63	103.8	31	58.3	)	)
3,000,001 - 5,000,000	)	)	)	)	2	7.4	8	29.4	11	41.4	14	50.2	10	40.1	)	)
5,000,001 - 10,000,000	232)	668.7)	48)	218.4)	2	17.1	16	120.6	6	40.5	9	66.1	12	93.8	626)	2,277.3)
10,000,001 - 15,000,000	)	)	)	)	2	20.6	-	-	1	14.1	8	98.8	3	41.0	)	)
15,000,001 and above	)	)	)	)	1	18.6	4	140.9	4	95.5	2	43.4	1	16.2	)	)
TOTAL	2,310	1,108.6	258	278.3	309	200.6	386	457.5	406	385.6	392	450.6	166	286.9	4,223	3,166.2
D. Repayment Term (year)																
1 - 5	207	65.1	44	21.9	113	38.8	103	72.7	97	49.9	115	46.7	40	21.0	716	315.6
6 - 8	1,093	244.5	119	60.7	132	89.5	219	189.5	260	195.5	240	263.1	106	197.4	2,167	1,239.0
9 - 13	896	589.5	88	119.4	63	69.9	59	180.0	42	106.0	31	85.0 1/	18	56.8	1,198	1,206.5
14 - 20	114	209.5	7	76.3	1	2.4	5	15.2	7	34.2	6	55.8 1/	2	11.7	142	405.1
TOTAL	2,310	1,108.6	258	278.3	309	200.6	386	457.5	406	385.6	392	450.6	166	286.9	4,223	3,166.2

1/ One loan, for IL 27 million, was granted for 25 years for an industrial estate project.

Source: Industrial Development Bank of Israel
November, 1974

ANNEX 8
Table 3

ANNEX 9

ISRAEL: Sources of Finance for Industrial Fixed Investment 1/
(IL million - Current Prices)

	1969	1970	1971	1972	1973	1969-73	%
Gross Fixed Investment	671	822	1,059	1,358	1,535	5,445	100
Sources of Finance							
IDBI	207	245	331	431	401	1,615	30
Other Financial Institutions	28	28	80	255	241	632	11
Pension Funds	63	92	86	135	149	525	10
Subtotal Development Loans	298	365	497	821	791	2,772	51
Grants	33	56	80	89	126	384	7
Suppliers' Credit 2/	100	120	100	100	100	520	10
Others (mainly self-finance and direct foreign investment)	240	281	382	348	518	1,769	32
	671	822	1,059	1,358	1,535	5,445	100

1/ Including mining
2/ Estimate

EMENA/IC & DFC Division
February 1975

ANNEX 10

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Resources Position as of September 30, 1974
(IL Million)

		Amount	Percent of Total
Share capital		375.0	16
Reserves and surplus		128.9	5
Perpetual deposit/1		467.0	10
Capital notes/2		71.4	3
Long-term debt:	local currency	323.0	14
	foreign currency	995.0	42
Total resources		2,360.3	100
Loans outstanding	2,009.2		
Equity investments in subsidiaries	15.1		
Other equity investments	4.5	2,028.8	86
Available for disbursement		331.5	14
Undisbursed commitments		347.8	15
Available for commitments		(16.3)	(1)

/1 Includes IL 98 million to be received from the Israel Treasury by March 31, 1975.

/2 Includes the equivalent of US$16 million expected to be received by December 31, 1975 out of US$50 million to be sold in the U.S. This issue was registered in July 1974; by March 31, 1975 about US$7 million had been sold.

Source: Industrial Development Bank of Israel, Ltd.
December 1974

ANNEX 11

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Loan Portfolio Analysis as of June 30, 1974
(IL Millions)

	Amounts Outstanding			Percent of Total Portfolio	Amounts Guaranteed by Gov. or others	Percent Guaranteed	Amount in Arrears			Percent of Total Portfolio
	Principal	Interest	Total				Principal	Interest	Total	
Total Portfolio (before provision)	1,907.4	52.1	1,959.5	100.0	815.2	41.6				
Loans Affected by Arrears										
Loans in court	47.2	9.6	56.8	2.9	44.8	78.9	47.2	9.6	56.8	2.9
Other loans in default										
Up to 3 months	15.6	1.1	16.7	0.9	6.7	40.1	0.4	1.1	1.5	0.1
3 - 6 months	12.4	0.3	12.7	0.6	0.1	0.8	0.9	0.3	1.2	0.1
6 - 12 months	79.2	4.0	83.2	4.2	75.6	90.9	2.3	4.0	6.3	0.3
over 12 months	6.9	0.9	7.8	0.4	4.8	61.5	1.9	0.9	2.8	0.1
Sub-Total	114.1	6.3	120.4	6.1	87.2	72.4	5.5	6.3	11.8	0.6
Total loans affected by arrears	161.3	15.9	177.2	9.0	132.0	74.5	52.7	15.9	68.6	3.5

Source: Industrial Development Bank of Israel, Ltd.
January 1975

ANNEX 11
Appendix

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Note on Arrears

1. Of the loans affected by arrears (IL 177.2 million), almost one-third (IL 56.8 million) are being liquidated by court action. There are 50 separate companies involved, of which 35 have already been liquidated but are awaiting final court action. Of the remaining loans in default (IL 120.4 million) one loan of IL 64.8 to Arad Chemical Industries Ltd. accounts for over half of the amount. This is a Government-sponsored project to produce phosphoric acid using hydrochloric acid produced from Dead Sea water. The process adopted for the production of hydrochloric acid is a new one and has experienced technical difficulties; the company is deciding whether to press forward and solve these difficulties or invest additional funds to convert to a different, tested process. None of IDBI's funds are at risk in this project.

2. The second largest loan affected by arrears totals IL 7.5 million and is to a textile plant. There are several textile plants in default, accounting for IL 26.1 million of the total, and all suffer to a greater or lesser extent from the same worldwide problems: increases in raw material prices combined with falling sales prices.

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Income Statements
(IL million)

	1970	1971	1972	1973	Jan-Sept. 1974
	(audited)				(unaudited)
INCOME					
Interest from loans and deposits	88.0	110.5	137.2	166.4	141.8
Interest from security investments	0.6	1.3	1.1	2.0	1.3
Dividends	1.2	1.7	1.6	1.5	0.2
Commission and other income	2.8	4.0	6.1	5.0	4.5
Recoveries in respect of insurance of exchange differences and linkage increments on interest on Bank's liabilities	0.7	3.3	6.8	8.8	7.9
	93.3	120.8	152.8	183.7	155.7
EXPENSES					
Interest expense	35.7	55.9	82.6	102.9	68.2
Administrative and general expenses	3.9	4.5	5.3	7.4	6.6
Contribution to Immigrants Absorption Fund	-	-	0.8	0.8	-
Depreciation	0.3	0.1	0.1	0.2	0.2
Amortization of debentures and bond issue expenses	0.5	-	-	-	-
Provision for doubtful debts	1.2	1.4	1.5	4.9	1.5
	41.6	61.9	90.3	116.2	96.5
Operating earnings	51.7	58.9	62.5	67.5	59.2
Capital gains (loss)	1.0	0.6	1.3	4.3	3.2
Participation of the Israel Treasury in linkage increments on dividends	3.3	6.3	8.6	8.9	6.1
	56.0	65.8	72.4	80.7	68.5
Provision for taxes	29.5	35.0	38.5	44.3	39.1
Net earnings	26.5	30.8	33.9	36.4	29.4
APPROPRIATION OF NET EARNINGS					
Dividends (net)	18.7	20.2	22.6	22.4	10.2
Provision for dimunution in value of investments	(1.4)	1.7	0.9	0.1	(2.0)
Reserve for future capital redemption	1.4	1.3	1.4	1.4	-
General reserve	3.0	3.5	4.0	6.0	-
Special reserve	3.6	4.0	5.0	6.4	-
Unappropriated profit	0.1	0.1	-	0.1	21.2
Debenture issue expense written off	1.1	-	-	-	-
Net earnings	26.5	30.8	33.9	36.4	29.4
	as percentage of average total assets				1/
Income	8.5	8.7	8.8	9.0	9.2
Interest expense	3.2	4.0	4.8	5.0	5.2
Gross spread	5.3	4.7	4.0	4.0	4.0
Administrative and general expenses	0.4	0.3	0.3	0.4	0.4
Other expenses	0.2	0.1	0.1	0.3	0.1
Operating earnings	4.7	4.3	3.6	3.3	3.5
Other income	0.4	0.5	0.6	0.6	0.5
Gross earnings	5.1	4.8	4.2	3.9	4.0
Provision for taxes	2.7	2.5	2.2	2.1	2.3
Net earnings	2.4	2.3	2.0	1.8	1.7
	Percentages				
Net earnings/total share capital (year end)	7.0	8.2	9.0	9.7	10.5
Net earnings/adjusted share capital (year end) 2/	10.8	13.1	14.8	16.1	n.a.
Net earnings/net worth (year end)	5.9	6.7	7.3	7.6	7.8
Gross dividends/total share capital (year end)	6.6	7.1	8.0	8.0	n.a.
Payout ratio(net dividend/net earnings)	70.6	65.6	66.7	61.5	n.a.

1/ On annual basis
2/ Excludes Government-owned Ordinary "B" and Preference "A" share and dividends thereon.

Source: Industrial Development Bank of Israel, Ltd.
January 1975

ANNEX 13

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Balance Sheets
(IL million)

	December 31,				Sept. 30
	1970	1971	1972	1973	1974
		(audited)			(unaudited)
ASSETS					
Cash and deposits	57.3	10.1	38.9	15.0	16.8
Receivables	12.3	22.3	23.3	30.0	45.0
Current assets	69.6	32.4	62.2	45.0	61.8
Loans outstanding 1/	1,009.6	1,249.7	1,601.5	1,873.7	n.a.
Less: provision for losses	(9.0)	(10.4)	(10.8)	(15.2)	n.a.
Sub-total	1,000.6	1,239.3	1,590.7	1,858.5	2,009.2
Equity investments in subsidiaries	14.8	14.8	15.1	15.1	15.1
Other equity investments	15.4	16.2	12.0	7.8	n.a.
Less: provision for losses	(3.1)	(4.7)	(3.4)	(3.5)	n.a.
Sub-total	27.1	26.3	23.7	19.4	19.5
Receivable in connection with sale of equity investment	-	-	-	-	3.4
State of Israel bonds	17.4	21.0	24.5	34.7	37.2
Long-term deposits with Israel Treasury	70.1	152.7	112.2	97.4	80.8
Receivable from Government on account of exchange differences and linkage increments on liabilities	12.1	101.4	90.6	118.0	137.4
Net fixed assets	2/	2/	2/	2/	2/
Total	1,196.9	1,573.1	1,903.9	2,173.0	2,349.3
LIABILITIES					
Current liabilities	94.8	89.6	120.0	184.7	192.5
Special deposits for granting loans	77.0	102.7	121.8	132.1	133.2
Deferred taxes on income	4.4	4.4	4.4	-	-
Long-term debt:					
Secured by floating change	318.8	469.4	490.8	534.4	570.1
Unsecured	252.3	320.9	545.1	560.0	580.6
Sub-total	571.1	790.3	1,035.9	1,094.4	1,150.7
5% Perpetual Deposit	-	128.8	155.3	281.1	369.0
Share capital	378.1	377.2	376.1	375.0	375.0
Reserves:					
Share premiums	7.5	7.5	7.5	7.5	7.5
Capital linkage funds	31.9	31.9	32.1	33.8	35.7
Capital redemption reserve fund	3.0	4.0	5.1	6.2	6.2
Reserve for future capital redemption	1.4	1.4	1.4	1.4	1.4
General reserve	21.5	25.0	29.0	35.0	35.0
Special reserve	5.6	9.6	14.6	21.0	21.0
Unappropriated profits	0.6	0.7	0.7	0.8	22.1
Sub-total	71.5	80.1	90.4	105.6	128.9
Total	1,196.9	1,573.1	1,903.9	2,173.0	2,349.3
Contingent Liabilities					
Long-term guarantees	14.6	17.7	101.2	76.2	81.7
Documentary credits	3.9	13.4	5.2	15.0	32.9
	18.5	31.1	106.4	91.2	114.6

1/ Includes accrued interest.
2/ Written down to nominal figure of IL 1.

Source: Industrial Development Bank of Israel, Ltd.
January 1975

ANNEX 14

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Analysis of Spread
(in percent)

Income	1970	1971	1972	1973	6 months 1/ 1974
Loan portfolio	8.7	8.9	8.9	9.0	9.2
Equity portolio 2/	6.1	7.5	8.1	15.2	5.5
Other assets	9.2	9.7	9.6	9.8	11.9
Average return on assets	8.7	9.0	9.0	9.3	9.2
Expense					
Equity Funds	7.9	8.2	8.5	8.6	9.0
Perpetual deposits	-	5.0	5.0	5.0	5.0
Long-term debt	5.9	6.2	6.7	7.0	7.1
Other liabilities	3.5	4.6	6.1	5.0	4.5
Average cost of equity and liabilities	6.6	6.8	7.1	7.0	7.0
Spread	2.1	2.2	1.9	2.3	2.2

1/ on annual basis

2/ including capital gains (losses)

Source: EMENA/IC & DFC
December 1974

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Projections of Loan Operations - 1974-79
(IL million)

Years ending December 31,	1973 (actual)	1974	1975	1976	1977	1978	1979
Approvals	457.5	800	1,250	1,540	1,750	2,070	2,383
Commitments	401.9	520	1,160	1,440	1,640	1,910	2,270
Disbursements	401.3	420	890	1,200	1,500	1,850	2,270

Note: It is expected that loans will be half in local currency and half in foreign exchange.

Source: Industrial Development Bank of Israel, Ltd.
January 1975

ANNEX 15

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Projected Cash Flow Statements - 1974-1979
(IL million)

Years Ending December 31,	1974	1975	1976	1977	1978	1979
SOURCES						
Profit before taxes	90.2	104.3	119.6	140.1	164.2	193.0
Non-cash changes	4.5	9.3	13.3	16.2	19.2	21.1
Draw down of existing loans:						
Domestic currency[1]	121.1	6.2	1.0	0.7	0.7	0.7
Foreign currency	139.8	77.2	15.6	-	-	-
Draw down of new identified loans:						
Domestic currency[1]	30.0	346.0	370.3	393.3	343.4	375.0
Foreign currency	27.4	289.0	291.3	243.0	188.0	-
Draw down of new unidentified loans:						
Foreign currency	-	85.0	410.0	750.0	1,190.0	1,615.0
Collection of loans	223.0	277.7	357.3	472.2	640.5	890.0
Increase in other liabilities	25.9	-	-	-	1.9	3.0
Decrease in other assets	-	32.6	-	-	-	-
Total	661.9	1,227.3	1,578.4	2,015.5	2,547.9	3,097.8
USES						
Disbursement of loans	420.0	890.0	1,200.0	1,500.0	1,850.0	2,270.0
Repayment of loans:						
Domestic currency[2]	16.1	18.3	18.0	17.7	17.5	20.0
Foreign currency[3]	147.7	208.5	234.0	346.6	496.2	594.0
Payment of taxes	42.4	50.8	60.1	72.5	86.0	104.5
Payment of dividends	34.0	39.3	39.2	39.1	38.9	38.8
Increase in other assets	1.7	-	20.4	37.6	59.3	70.5
Decrease in other liabilities	-	20.4	6.7	2.0	-	-
Total	661.9	1,227.3	1,578.4	2,015.5	2,547.9	3,097.8

[1] Includes 5% perpetual deposits and special deposits.
[2] Includes special deposits and share capital redemption; net of linking increments.
[3] Includes share capital redemption; net of exchange differences.

Source: Industrial Development Bank of Israel, Ltd.
January 1975

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL, LIMITED

Projected Statements of Income - 1974-1979

(IL Million)

Years ending December 31	1974	1975	1976	1977	1978	1979
INCOME						
Interest from loans	174.2	217.6	287.5	376.2	483.4	606.8
Interest from security investments	13.9	9.5	7.2	6.7	6.6	8.3
Dividends	1.2	1.2	1.2	1.2	1.2	1.2
Other income	31.7	57.6	51.0	46.2	42.0	38.7
	221.0	285.9	346.9	430.3	533.2	655.0
EXPENSES						
Interest expense	114.9	158.6	198.7	257.1	331.3	420.8
Administrative and general expenses	11.4	13.7	15.3	16.9	18.5	20.1
Depreciation	0.3	0.3	0.3	0.3	0.3	0.5
Provision for doubtful debts	4.2	9.0	13.0	15.9	18.9	20.6
	130.8	181.6	227.3	290.2	369.0	462.0
Profit before taxes	90.2	104.3	119.6	140.1	164.2	193.0
Provision for taxes	42.4	50.8	60.1	72.5	86.0	104.5
Net earnings	47.8	53.5	59.5	67.6	78.2	88.5
APPROPRIATION OF NET EARNINGS						
Dividends (net)	34.0	39.3	39.2	39.1	38.9	38.8
Reserves	13.8	14.2	20.3	28.5	39.3	49.7
Net earnings	47.8	53.5	59.5	67.6	78.2	88.5
	- - - - as percentage of average total assets - - - -					
Income	9.0	9.5	9.6	9.5	9.5	9.5
Interest expense	4.7	5.3	5.5	5.7	5.9	6.1
Gross spread	4.3	4.2	4.1	3.8	3.6	3.4
Administrative and general expenses	0.5	0.4	0.4	0.4	0.3	0.3
Other expenses	0.2	0.3	0.4	0.3	0.4	0.3
Profit before taxes	3.6	3.5	3.3	3.1	2.9	2.8
Provision for taxes	1.7	1.7	1.7	1.6	1.5	1.5
Net earnings	1.9	1.8	1.6	1.5	1.4	1.3
	- - - - - - - - - - Percentages - - - - - - - - - -					
Net earnings/total share capital (year end)	12.8	14.3	16.0	18.3	21.3	24.2
Net earnings/adjusted share capital (year end) 1/	22.2	25.3	28.7	33.3	39.4	45.3
Net earnings/net worth (year end)	9.7	10.6	11.4	12.3	13.3	14.0
Payout ratio (net dividends/net earnings)	71.1	73.5	65.9	57.8	49.7	43.8

1/ Excludes Government-owned Ordinary "B" and Preference "A" shares and dividends thereon.

Source: Industrial Development Bank of Israel, Ltd.
January 1975

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Projected Balance Sheets - 1974-1979
(IL million)

	December 31,						
	1973 (actual)	1974	1975	1976	1977	1978	1979
ASSETS							
Cash and deposits	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Receivables	30.0	23.5	35.1	50.9	65.9	82.2	94.2
Current Assets	45.0	38.5	50.1	65.9	80.9	97.2	109.2
Loans outstanding 1/	1,873.7	2,127.8	2,762.1	3,633.8	4,698.6	5,955.1	7,390.1
Less: provision for losses	(15.2)	(19.4)	(28.4)	(41.4)	(57.3)	(76.2)	(96.8)
Subtotal	1,858.5	2,108.4	2,733.7	3,592.4	4,641.3	5,878.9	7,293.3
Equity investments in subsidiaries	15.1	15.1	15.1	15.1	15.1	15.1	15.1
Other equity investments (net of provisions)	4.3	4.3	4.3	4.3	4.3	4.3	4.3
State of Israel bonds	34.7	45.6	53.6	62.6	72.6	84.6	99.6
Long-term deposits with Israel Treasury	97.4	90.5	27.6	9.7	-	-	-
Receivable from Government on account of exchange differences and linkage increments on liabilities	118.0	452.1	355.2	271.5	199.6	138.8	89.7
Net fixed assets	2/	2/	2/	2/	2/	2/	2/
Total	2,173.0	2,754.5	3,239.6	4,021.5	5,013.8	6,218.9	7,611.2
LIABILITIES							
Current liabilities	184.7	187.4	179.9	190.3	204.6	224.1	240.5
Special deposits for granting loans	132.1	190.6	181.3	171.1	160.8	152.2	144.1
Long-term debt:							
Domestic currency	186.7	199.4	365.0	567.4	815.3	1,111.7	1,470.0
Existing and identified foreign currency	907.7	1,309.0	1,377.5	1,423.6	1,374.6	1,242.1	965.5
Unidentified foreign currency	-	-	85.0	445.0	1,075.0	2,035.0	3,290.0
Subtotal	1,094.4	1,508.4	1,827.5	2,436.0	3,264.9	4,388.8	5,725.5
5% perpetual deposit	281.1	375.0	545.0	700.3	833.6	867.0	867.0
Share capital	375.0	374.0	373.0	371.0	369.0	367.0	365.0
Reserves	105.7	119.1	132.9	152.8	180.9	219.8	269.1
Total	2,173.0	2,754.5	3,239.6	4,021.5	5,013.8	6,218.9	7,611.2
Long-Term Debt/Equity Ratio	3.0	3.3	4.3	5.7	7.1	8.6	10.0

1/ Includes accrued interest
2/ Written down to nominal figure of IL 1

Source: Industrial Development Bank of Israel, Ltd.
January 1975

ANNEX 19

INDUSTRIAL DEVELOPMENT BANK OF ISRAEL LIMITED

Projected Disbursement Schedule
(in million Dollars)

		Total for Quarter	Total for Year	Cumulative Total
1975	July - September	0.3		
	October - December	0.6	0.9	0.9
1976	January - March	0.9		
	April - June	1.2		
	July - September	1.6		
	October - December	1.9	5.6	6.5
1977	January - March	2.2		
	April - June	2.5		
	July - September	2.5		
	October - December	2.5	9.7	16.2
1978	January - March	2.2		
	April - June	1.9		
	July - September	1.6		
	October - December	1.2	6.9	23.1
1979	January - March	0.9		
	April - June	0.7		
	July - September	0.3	1.9	25.0

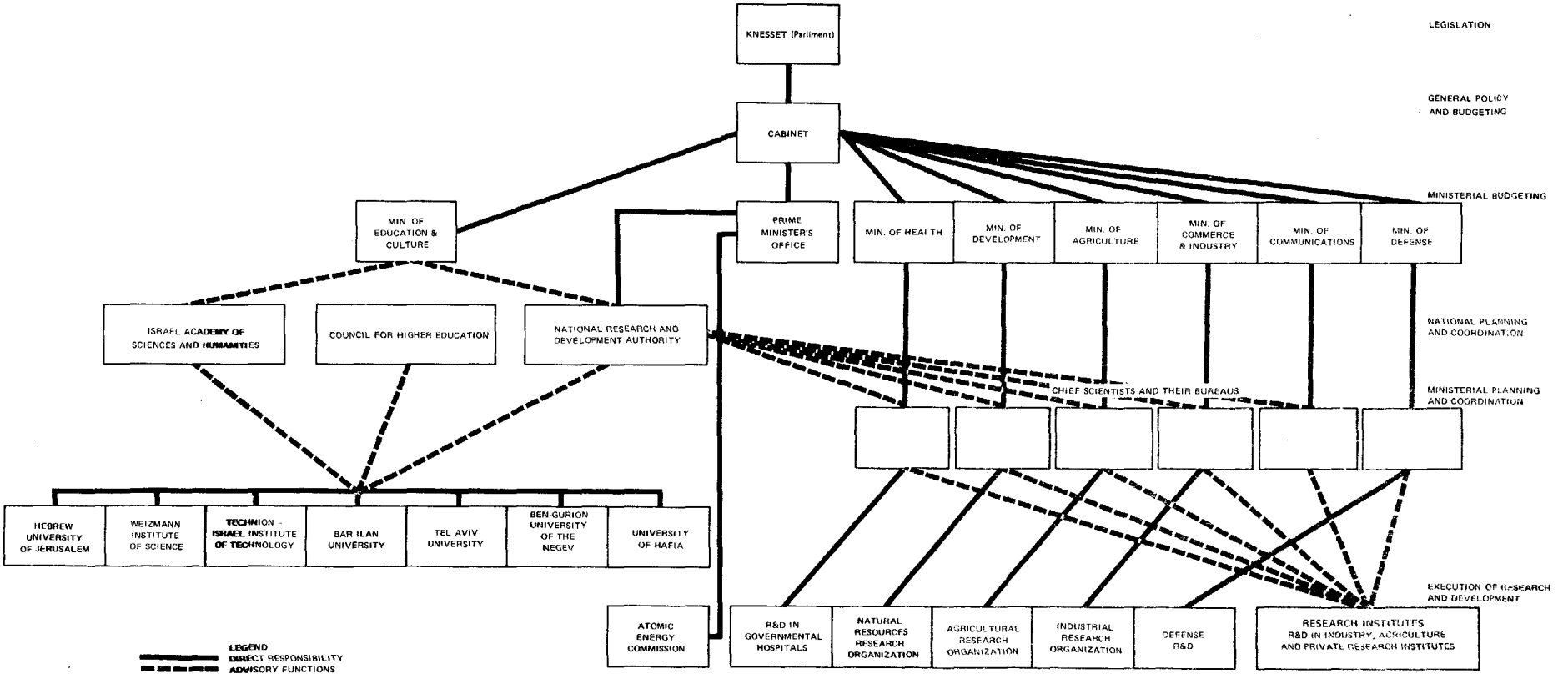
EMENA/IC & DFC Division
March 1975

ANNEX 20

ISRAEL: Organization of Research and Development Activity

The formulation of national policies in R&D, the initiation of new R&D programs, and the coordination of all research activity is entrusted to the National Research and Development Authority, which is responsible to the Prime Minister. The Authority's Board is composed of the Chief Scientists of the ministries, representatives of the universities and members of the National Academy of Science. The Authority finances research programs and sets up study groups (a) to propose long-range research programs for the major sectors of the economy; and (b) to review international and local developments in science and technology, assessing inter alia their practical implications for Israel's economic development. The Authority also serves as the Secretariat of the Ministerial Committee on Science and Technology, which sets priorities, takes final decisions and ensures interministerial coordination in the implementation of national policies. At the ministerial level, research programs are implemented by the Office of the Chief Scientist, which has been established in key Ministries, including the Ministry of Commerce and Industry. The appended Organization Chart gives the structure of Israel's R&D activity.

ORGANIZATION CHART OF RESEARCH AND DEVELOPMENT IN ISRAEL



EMENA/IC & DFC
January 3, 1975

World Bank–9431

ANNEX 20
Appendix

Multi-purpose Facility for Industrial R & D in the Negev

Background and Objectives

1. The Negev covers 60% of Israel's land area and contains 12% of Israel's population. Thus, it is the main territorial reserve capable of natural growth. It contains most of the mineral resources of Israel: potash, magnesium, aluminum, copper, bromine, clay and phosphates. Because of its proximity to these basic materials, the Negev has been designated as the major region for extensive industrial development. A number of large chemical companies have already been established in the area, including Bromine Compounds Ltd., Makhteshim Beersheva Chemical Works Ltd., and the Dead Sea Works, and are expanding rapidly. Many medium sized plants producing glass, refractories and ceramics are now in operation, while new small industries are appearing. In order to develop novel and improved products and processes, these industries need research, development and testing facilities.

2. The basic functions of the proposed expanded facilities would be: (a) to provide additional specialized R&D and other technical services to large industries already equipped with laboratories of their own; and (b) to furnish R&D and testing services to industries too small to provide for their own laboratories and which are not presently served. The facility will also continue to perform work for university laboratories on a contract basis. A related objective would be to move the Authority's on-going and future research programs further toward commercial application.

Organization and Program

3. The R&D Authority was established in 1973 following the incorporation of the former Negev Institute for Arid Zone Research into the Ben-Gurion University of the Negev. The primary aims and responsibilities of the Authority are: (a) to initiate applied research and development activities, both of general importance to industry and of particular significance for the industry located in the Negev; (b) to seek and administer research grants from government and private sources both in Israel and overseas; (c) to encourage industry to make use of the scientific experience and facilities available within the University; and (d) to help in the development of new industries.

4. The Authority administers applied research organized in Divisions of Chemical Technology, Desert Engineering, Desert Ecology, Natural Products, and Glass, Ceramics and Silicates (see appended Organization Chart). Among the principal areas of investigation are water desalination and reclamation, including membrane processes; revegetation for animal production in the Negev; exploitation of natural resources of the Negev; plant physiology and biochemistry; applications of radioisotopes in engineering. Local industry shows a keen interest in the program. Currently, about half of the Authority's IL 10.3 million income comes from research and technical services provided mainly to industry. The fiscal 1975 budget is appended. It is understood

that direct Government support for the Authority will be phased out in five years, thus making the Authority self-supporting and dependent on industry for revenues. This is a very ambitious goal, one which if it is achieved will set the Authority apart from all but a very few analogous institutions in the world. The Authority is a non-profit organization.

Proposed New Facilities

5. The R&D Authority and its predecessor (going back to 1958) have had reasonably good laboratory facilities for R&D, both fundamental and applied, on bench scale. In order for the R&D Authority to provide better and more diversified service to the industry in the Negev, it urgently needs (a) a modern and well-equipped Unit Process Laboratory; and (b) a modern Testing Service Facility. The Unit Process Laboratory, containing multipurpose intermediate sized equipment, would make it possible to scale up processes developed in the laboratory to a pilot plant size. The facility would allow study in depth of the processes and products, including costing and marketability, thereby greatly facilitating commercialization. The Testing Service Facility would be valuable to industry, providing independent support for R&D and manufacturing, including quality control. It would include the following units: Metallography--advanced microscopy, physical properties of materials, heat treating; Mechanical Testing of Materials--fabricating and processing, non-destructive testing; Special Purpose Section--corrosion and surface protection, polymers, ceramics, composite materials, and machine shop. The Testing Service Facility will also construct, erect, maintain and repair equipment and will also attend to technical problems, such as corrosion, safety, control and automation. Service charges to industry for the use of the facility are expected to increase and to cover its operating costs. Total cost of the subproject is estimated at US$8.2 million, of which US$3.4 million in foreign exchange (see Annex 27).

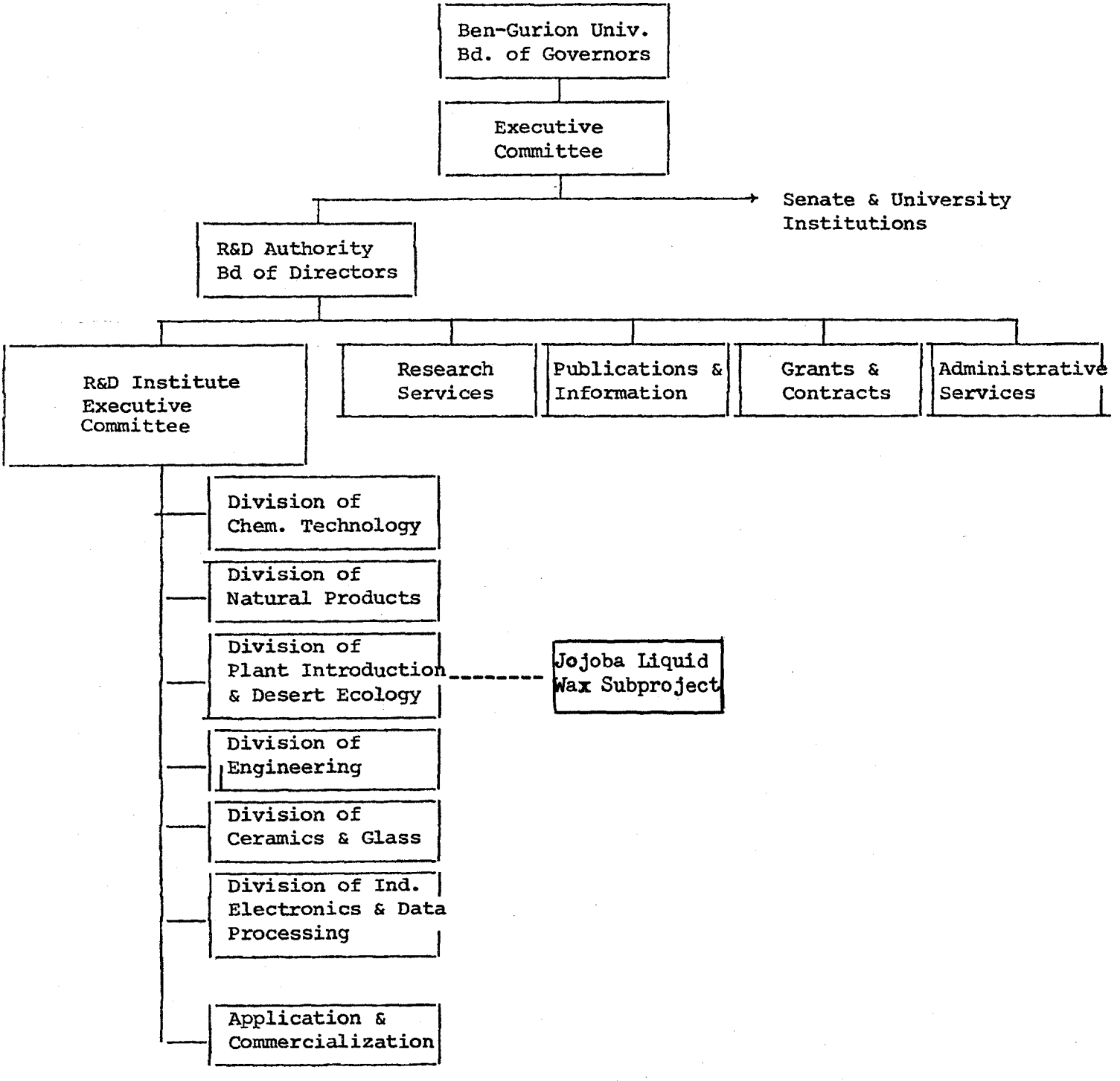
Management and Staff

6. The management of the R&D Authority is experienced and capable. Dr. Schechter, the Authority's Associate Director, provides strong leadership. The Authority has a staff of 210, of which 80 are scientists and engineers. The Authority's staff is competent and technically qualified. A list of the Authority's key scientific personnel is appended. In addition to its own staff, the Authority draws on consultants from other Israeli research institutes, university faculty members, and local industrial-technical people, thereby augmenting its range of expertise.

ANNEX 21
Appendix 1

RESEARCH & DEVELOPMENT AUTHORITY

ORGANIZATION CHART



Source: Research & Development Authority
January 1975

ANNEX 21
Appendix 2

KEY SCIENTIFIC PERSONNEL OF RESEARCH & DEVELOPMENT AUTHORITY

as of January 31, 1975

Director of Research & Development Authority	Prof. Z. Pelah
Associate Director of Research & Development Authority (At present Acting Director)	J. Schechter
Administrative Director	O. Lapid
Head, Grants & Contracts	E. Rubin
Head, Publications & Information	Y. Glassman
Head, Administrative Services	E. Nutkovitch
Director Research & Development Institute	J. Schechter
Head, Industrial Chemistry	Prof. Ch. Forgacs
Head, Engineering	Prof. K. Preiss
Head, Natural Products	Dr. D. Sitton
Head, Plant Introduction & Desert Ecology	M. Forti
Head, Ceramics & Glass	Prof. E. Azmon
Head, Indust. Electronics & Information Processing	Prof. A. Cohen
Head, Application & Commercialization	A. Tal

Source: Research & Development Authority
January 1975

ANNEX 21
Appendix 3

RESEARCH & DEVELOPMENT AUTHORITY

Budget for 1 April 1974 - 31 March 1975

	Planned Expenses IL.	Planned Income IL.	Estimated Actual Income IL.
Research Divisions			
1 - Engineering -	725,500		
Regular Budget		284,500	284,500
Grants & Contracts		441,500	630,000
2 - Industrial Chemistry	3,510,800		
Regular Budget		2,247,000	2,247,000
Grants & Contracts		1,263,800	1,675,000
3 - Natural Products	2,210,000		
Regular Budget		1,400,000	1,400,000
Grants & Contracts		810,000	1,140,000
4 - Plant Introduction & Desert Ecology	939,350		
Regular Budget		248,000	248,000
Grants & Contracts		691,350	950,000
5 - Ceramics & Glass	-		
Grants & Contracts			250,000
6 - Investments	320,520		
Regular Budget		320,500	320,500
			250,000
Total Budget			
Regular Budget		4,500,000	4,500,000
Grants & Contracts		3,206,655	4,895,000
Total	*7,706,655	7,706,655	9,395,000

*Note: Actual expenses will be approximately equal to actual income.

Source: Research & Development Authority
January 1975

RESEARCH AND DEVELOPMENT AUTHORITY

Analysis of Expenses
(Year ended March 31, 1975)

	Salaries IL.	Travel IL.	Supplies IL.	Equipment IL.	Miscellaneous IL.	Total IL.
1 - Research Divisions						
A - Regular Budget						
Engineering	314,038	4,769	66,753	84,332	27,767	497,659
Industrial Chemistry	276,246	3,878	11,636	4,180	10,652	306,592
Life Sciences	69,608	7 423	73,428	9,947	27,255	187,661
Desert Ecology & Plant Introduction	36,195	978	3,880	14,520	53,619	109,192
Total -	696,087	17,048	155,697	112,979	119,293	1,101,104
B - Grants & Contracts						
Engineering	610,271	87,486	54,399	31,234	122,011	905,401
Industrial Chemistry	436,109	17,301	89,013	32,333	49,871	624,627
Life Sciences	788,346	12,794	121,713	28,959	92,356	1,044,168
Desert Ecology & Plant Introduction	327,346	7,456	21,010	4,737	16,151	376,700
Total -	2,162,072	125,037	286,135	97,263	280,389	2,950,896
Total for Research Divisions -	2,858,159	142,085	441,832	210,242	399,682	4,052,000
2 - Services & Overheads						
Library	49,692	376	203,660	-	13,510	267,238
Workshops	154,931	8,379	25,458	-	1,871	190,639
Animal facilities	59,019	1,981	19,499	2,640	1,453	84,592
Publications	100,659	1,634	-	-	1,769	104,062
Transport	35,828	51,027	-	-	260	87,115
Photography & stencils	-	-	17,028	-	2,170	19,198
Analytical laboratory	62	-	4,058	234	2,793	7,147
Total	400,191	63,397	269,703	2,874	23,826	759,991
Total Expenses	3,258,350	205,482	711,535	213,116	423,508	4,811,991

*Figures taken from official financial audit of Ben-Gurion University to 31 March 1974

Source: Research & Development Authority
January 1975

ANNEX 21
Appendix 4

Solar Ponds

Background and Objectives

1. Work on solar ponds in Israel was initiated in 1958 and continued until 1966. At that time it was concluded that the cost of production of energy from such ponds would be too high to compete with conventional fuels. Currently, however, with improved techniques and with rising fuel costs, expanded use of solar energy seems feasible.

Technical Aspects

2. The non-convecting solar pond collector is a black-bottomed pond in which convection is suppressed by a density gradient: the salt solution is maintained denser at the bottom than at the top. The absence of convection allows solar heat, absorbed by the more concentrated solution at the bottom, to be trapped there. The heat can be extracted for conversion into electrical energy or used directly. The experimental tests show that a temperature close to the boiling point of water can be obtained at the bottom of the pond and that 20-30% of incident solar radiation is retained at low but useful temperatures. The subproject is concerned with scaling up the system to commercial prototype size and to evaluate the viability of commercialization.

Organization

3. The proposed R&D will be done by the Scientific Research Foundation, a non-profit public institution, under the supervision of Dr. Harry Tabor, a highly respected pioneer in the field of solar energy. He will be assisted by some of the very competent specialists associated with him in the earlier program. The work will be done in cooperation with the National Physical Laboratories (one of the national laboratories under the general supervision of the OCS) and in the facilities of that laboratory at the Hebrew University. The National Physical Laboratory is owned by the Government and employs a well-qualified and competent staff of 33, including eight technicians. An Organization Chart is appended.

Program

4. The project will consist of: (a) a study of the technical problems and economic feasibility; (b) building and putting into operation a small-scale prototype and providing conceptual design for a desalination plant and for the production of electric power in the range of 10 megawatts. The project is expected to take three years to complete and costs are estimated at US$1.7 million, of which US$0.3 million is foreign exchange (Annex 27).

5. Research on solar energy is being carried out in a number of institutes around the world, including the Lawrence Livermore Laboratories at the University of California. The proposed salt solution pond is believed to be simpler and has a greater energy storage capacity than other techniques,

provided it can be demonstrated that the solar pond is stable (i.e. that the more concentrated salt solutions remain at the bottom), and that it is low in maintenance cost and efficient over a long period of time when undertaken on a sufficiently larger-scale.

Benefits

6. The Scientific Research Foundation estimated that solar energy could be produced at a cost of 34 Mils/KW hr. This would be competitive with small local power plants, usually diesel, but could not compete with conventional production of electrical energy in large installations. There, the higher operating temperatures make for more efficient operation and an energy cost of less than 10 Mils/KW hr. Therefore, solar energy will find its greatest use for small-scale production of electrical energy, and for the direct use of the low temperature heat in areas which have an arid and hot climate. Preliminary estimates suggest that solar ponds could produce 440 kwhs per square meter per year of thermal energy (e.g. hot water for desalination), or 44 kwhr per square meter per year of electrical energy.

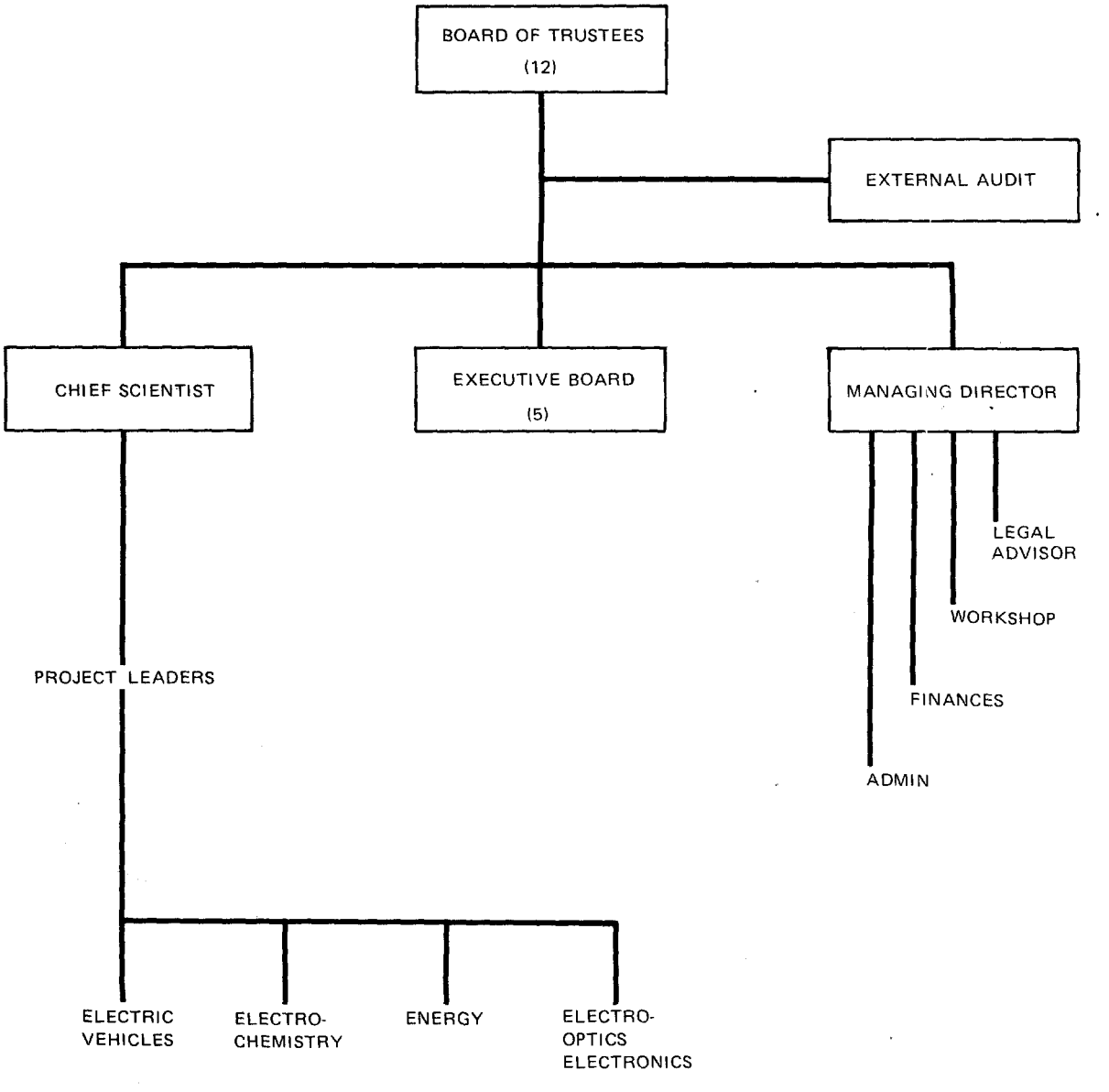
7. Israel's economy would benefit by the creation of a non-polluting energy source that would not rely on imported fuels. Depending on the success of the technology, there is also prospect of selling design and engineering services to other energy-hungry economies, particularly developing countries.

Vulnerability

8. The development work to be undertaken in this project is essentially to verify and check the results on a commercial prototype scale and to assess the commercial potential of the technology: specifically, whether or not the conditions of stability and lower operating costs can be met. It is also important that the institution acquire the necessary capabilities relating to commercial design and engineering in the early stage of prototype development to ensure its direction toward commercial application. The Bank has been assured during negotiations that the Scientific Research Foundation will take steps to this end as appropriate.

THE SCIENTIFIC RESEARCH FOUNDATION – JERUSALEM

ORGANIZATION CHART



Source: The Scientific Research Foundation, Jerusalem

World Bank-9595

EMENA/IC & DFC Division
February 1975

THE SCIENTIFIC RESEARCH FOUNDATION

Balance Sheets 1/

	30.9.74	30.9.73		30.9.74	30.9.73
Fixed Assets			**Funds**		
Building	337,241	337,241	Reserve	600,000	
Vehicles	56,445	15,000	Current projects (after allowing for debts to NPLI)	303,946	
Equipment (nominal)	1	1	Excess income over expenditure	27,137	
	393,686	352,242		931,083	1,002,989
Investments			**Severance Pay Fund**	88,490	43,000
Bank guaranteed loans	1,050,000	1,182,900	**Other Commitments**		
Securities	11,300	159,577	includes bank overdraft, short-term loans	788,505	739,029
Saving loan	62,906	29,336			
	1,124,206	1,371,813			
Advances and loans	290,186	60,963			
	1,808,078	1,785,018		1,808,078	1,785,018

1/ Condensed from the audited Hebrew balance sheet. Years ending September 30.

EMENA/IC & DFC Division
February 1975

THE SCIENTIFIC RESEARCH FOUNDATION

BUDGET: April 1, 1975 - March 31, 1976 1/ 2/

	IL
1. General costs	498,000
2. Electric Vehicle	
(a) vehicle development	1,719,000
(b) battery development	69,500
3. Electro-optics and electronics (includes devices for the blind, the handicapped and instrumentation used in other projects)	405,500
4. Energy and energy conservation (this item is in part dependent upon grants promised but not yet confirmed. It includes IL200,000 "seed money" for solar ponds)	600,000
5. Workshop	287,000
Total	3,579,000

1/ This budget shows general or "headquarters" costs - which includes some scientific staff, and costs for specific projects: the latter do not include administrative, workshop or overhead costs.

2/ Sources of revenue are research grants and own resources.

EMENA/IC & DFC Division
February 1975

Liquid Wax Production from Jojoba Beans

Background and Objectives

1. Jojoba (Simmondsia), a desert plant, produces beans which contain about 50%, by weight, of a practically colorless, odorless oil or liquid wax with unusual and useful properties. The oil resembles sperm whale oil in chemical composition and physical behavior. It possesses a high thermal stability so that the oil and its sulfurized derivatives have promise as special lubricants in high temperature, high pressure cutting oils. The liquid can be hydrogenated to a hard colorless solid, resembling carnauba wax in behavior. Completely hydrogenated wax has an unusually high melting point of about 75°C. Partial hydrogenation yields a softer wax or salve which also has unusual stability during long term storage, with the possibility of use as a cosmetic base. Extraction of the oil is relatively simple and can be carried out with standard equipment and techniques.

Technical Program

2. Preliminary experiments at the University of California, Riverside, and the Research and Development Authority in Beer Sheva indicate that the plants can be cultivated and the yield greatly improved. Adapting a wild species to cultivation is a protracted and relatively expensive process. Research on jojoba cultivation in Israel began in 1961. Preliminary work indicated that high yielding strains requiring little or no irrigation can be developed. Such cultivated immature plants (three-year olds) have yielded 800 grams; five or six year old plants have yielded 3 Kgs. Objectives of the proposed research are to develop: (a) a commercial crop with well-defined productivity and wax quality; (b) efficient methods of cultivation for maximum yield; (c) an inexpensive harvesting system; (d) supply of raw material (liquid wax) in quantities sufficient for industrial evaluation and product development; (e) a pilot plant to determine the best methods of liquid wax extraction, hydrogenation, polymerization, and utilization of potentially valuable by-products; and (f) new uses and markets for jojoba oil and wax. The first three objectives would run concurrently; the other three would be initiated toward the end of the program. The major uncertainty is whether the bush can be produced as a cultivated agricultural crop.

Organization

3. The personnel of the R&D Authority of the Ben-Gurion University of the Negev assigned to this project are experienced and well qualified. The project director, Meir Forti, is a competent agricultural engineer, familiar with the jojoba problem. The Authority's facilities available for the work are adequate. In order to ensure successful commercialization of the development work it is necessary to arrange for the cooperation of an agricultural organization to grow the crop and for an industrial chemical company to process and market the products. Planning for these activities will be started

immediately to ensure that practical considerations are related to the development activities.

Financial Aspects

4. The financial appraisal of the project cannot be done precisely until the technical problems are resolved. Based on a composite of known figures and desk estimates it was possible, however, to construct a rough estimate of the situation. The R&D will cost US$1.6 million of which US$0.6 million is foreign exchange (See Annex 27). If a technology is successfully developed, establishing a plantation containing 1,000 plants per acre will cost about US$1,000. Maintaining, harvesting etc. is estimated to be US$400-$600 per annum. After seven years, the mature bushes would produce 5,000 pounds of beans per year, which converts into 2,300 kilos of oil per acre. The oil can be converted at low cost into a series of products competing with sperm oil, beeswax, and carnauba wax. On the world market beeswax sells for US$2.05 per lb. and carnauba US$2.36-US$2.73. Imports by the major industrialized countries alone amount currently to over 15,000 tons a year. In addition, it is anticipated that new and more sophisticated markets will be developed for these products, commanding higher selling prices. On the basis of tentative estimates, wax can be produced at approximately US$0.60-0.70 per lb., which is encouraging. The R&D Authority will undertake annual in depth studies for waxes competing with carnauba, including the possible development of new competing technologies.

Benefits

5. The primary benefit of this project would be the establishment of an attractive agrochemical business, producing a wide array of valuable commercial materials, using arid land of limited value. It is anticipated that most of the product would be exported thereby bringing in hard currency to Israel. The agricultural procedures perfected here could later be adopted by other developing countries with similar climatic conditions. The prognosis of success for this project is very good, subject of course to the uncertainties that affect all long-range research projects.

Vulnerability

6. The project is based on the assumption that the jojoba bush can be converted into a commercial crop in Israel. The Negev researchers are confident it can be done. This optimistic view is shared by researchers in the U.S. Yet, it has to be demonstrated. Also, agricultural and industrial organizations must be brought into the project at an early date to ensure commercial focus.

Rural Telephone System

Background and Objectives

1. The subproject is intended to provide a rural telephone system to serve communities of 100 to 400 potential subscribers. The system will be an all-electronic telephone exchange integrated with a radio link to connect with the parent exchange, pre-packaged and pre-installed in a building so that it can be put into operation shortly after delivery. The marketing of such a system poses many difficulties. The system will have to compete not only with other electronic exchanges now in various stages of design and production, but also with proven crossbar and other systems now in widespread use. Tadiran feels it can market this product because of its association with General Telephone and Electronics International Ind. (GTEI), and believes there is a demand for a small size, fully electronic, pre-packaged and pre-installed telephone system.

Market Outlook

2. About 4.5 million lines of switching equipment are estimated to have been installed in the rural areas throughout the world as of the end of 1973, accounting for 2% of the world total telephone lines. Of this market, 92% is controlled, in the sense that procurement of switching systems for economy, standardization, nationalism and other reasons (e.g. many private telephone operating companies are owned by or have close ties with telephone equipment manufacturing companies) are mostly tied historically to fixed suppliers. This leaves only 8% of the market, or 335,000 lines to new entrants. The rural telephone market is projected to increase at about 14% per annum over the next 10 to 15 years. This would imply that during the 1980's, some 1.4 million lines would be installed in the uncontrolled market that falls in the range of sizes which Tadiran proposes to market. Tadiran projects (see Appendix 2) sales of 230,000 lines in the 1980's, representing 17% of the untied rural telephone market, which is attainable. Tadiran is confident that the novelty of its pre-packaged "rural communication center" and competitive price will enable it to penetrate this market. Competition from other rural systems incorporating fully electronic exchanges already exists and is certain to increase in the future, and Tadiran must get a quick and strong start if it is to succeed. Success in penetrating the market would depend on providing a cheaper and/or technologically superior system, on overcoming the marketing hurdle, and on doing both before competition becomes overpowering.

Proposed Development

3. The first phase of development will be the detailed and comprehensive characterization of the system, of the major sub-systems, and of the interfaces. The Tadiran design is feasible. The main effort will be carried out by three teams, working in parallel on the three major sub-systems: the exchange, the multiplexer, and the radio link. All three efforts will essentially be extensions of related development work in Tadiran which is now in various phases of completion.

4. This program extends over a 42-month period and consists of the following phases: (a) system definition; (b) engineering models development; (c) prototype run; (d) system integration tryout; (e) procurement and production set up.

5. The estimated total budget required for this R&D subproject is US$3.9 million, with foreign exchange costs amounting to US$1.8 million (see Annex 27). Based on Tadiran's anticipated share of the market, the financial and economic rates of return of the project, if it is successful, are 34% and 33%, respectively (Appendix 1). Tadiran's financial statements (1972-79) are appended.

Company Capability to Carry Out Project

6. Tadiran Israel Electronics Industries Ltd., is Israel's largest electronics and telecommunications manufacturer, although it barely exceeded workshop size when it was founded in 1961. Its sales have soared from IL 2 million in 1961 to IL 350 million during 1973. Tadiran presently employs about 300 engineers and other professionals, 1,300 technicians and other skilled workers, 2,500 production workers, and 500 clerical and service employees. Fifty percent of Tadiran's voting shares is owned now by GTEI, a world leader in the field of telecommunications electronics. Tadiran's major product lines include: telecommunication equipment, electric and electronic consumer products, power sources and electronics components. It exports 22% of its output. Tadiran's on-going R&D activity is one of the company's major assets; it allocates about 4% of its sales to R&D, maintaining an R&D force totalling 250 people.

7. If successful, this subproject would be financially rewarding, earn foreign exchange, and provide employment opportunities for scientists and engineers. In addition, there would be a spin-off in technological and marketing experience in developing and producing goods for a competitive world market.

Areas of Uncertainty

8. The subproject faces the considerable uncertainties in a competitive world. Tadiran's chances of success could be materially altered if there are significant delays in reaching the target dates for manufacture and sales, or if costs are not kept within its current targets and close to or lower than its competitors. Tadiran will also have to overcome advantages held by current telecommunication switching suppliers. Currently, major manufacturers are successfully marketing a number of modern electromechanical systems, such as the crossbar, which cater to the needs of rural areas and provide adequate service with low maintenance costs; and all have advanced developments in electronic switching which are aimed, at present, principally at the urban networks and at the business PABX but which are readily adaptable to the rural exchange market. Historically, the international market has been controlled by a few big international firms and there has been no entry by new

firms in the last several decades. Also, while GTEI, who will assist Tadiran, is a big firm in its own right, its share of international switching market has been relatively small in the last decade or so. Although the subproject is technically feasible, there are still difficulties in adapting a highly complex prototype into commercial use (because of possible incompatibilities among subcomponents of the system) and in integrating it into each of the different national telecommunications systems and signalling conditions.

9. Tadiran is confident of resolving technical problems with GTEI's assistance. It is also aware of the fact that its market research must be completed at an early stage, so that the areas most suitable for the installation of a rural telephone system as well as the specific requirements of each individual area can be ascertained in due time.

TADIRAN ELECTRONICS INDUSTRIES LTD

Financial and Economic Calculations
(IL Thousand)

Year	R & D Expenditures		Investment Costs[1]		Operating Costs[2]		Benefits	
	Financial	Economic	Financial	Economic	Financial	Economic	Financial	Economic
1	1600	4200						
2	3460	8550						
3	1070	3070						
4	330	950	10470	8860	4270		5800	4800
5			3060	1530	11730	3580	16000	13180
6			5040	2520	24500	9680	32900	26980
7			4380	2190	35400	19850	47500	41620
8			3570	2300	40800	28500	54800	44950
9			1520	760	47700	32850	59900	49150
10			880	440	50000	35210	62800	51540
11			880	440	52000	36830	65700	53940
12-20					52000	38125	65700	53940
21					52000	38125	80000	63790

1/ Gross working capital included.

2/ Include R&D expenditures after the 4th year.

Sensitivity Tests

I. Financial Rates of Return	Rates of Return
After taxes	34%
Excluding grant for R & D	22%
Including grant for R & D (65%)	34%
R & D expenditure increased by 100%	26%
Operating costs increased by 15%	17%
Operating costs decreased by 15%	46%
Sales revenue increased by 15%	49%
Sales revenue decreased by 15%	17%
Investment costs increased by 25%	30%
Investment costs increased by 50%	26%

II. Economic Rates of Return	Rates of Return
As projected	33%
R & D expenditure increased by 100%	20%
Investment costs increased by 25%	31%
Operating costs increased by 15%	27%
Sales revenue increased by 25%	45%
Sales revenue decreased by 25%	10%
Investment costs increased by 50%	29%
Operating costs increased by 25%	23%

ANNEX 24
Appendix 1

EMENA/IC&DFC Division
January 1975

TADIRAN ISRAEL ELECTRONICS INDUSTRIES LTD

Projected Market Share
(Thousand Lines)

	1973	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1980-89
Rural Telephone Installed 2/	355 1/	890	1,015	1,160	1,320	1,505	1,715	1,955	2,230	2,540	2,900	17,230
Uncontrolled Rural Telephone Market 3/	-	71	81	93	106	120	137	156	178	203	232	1,377
Tadiran's Projected Sales	-	13	20	21	23	24	26	26	26	26	26	231
Tadiran's Share in the Untied Market	-	18%	25%	22%	22%	20%	19%	17%	15%	13%	11%	17%

1/ Represents 2% of the world market
2/ Estimated annual rate of growth: 14%
3/ Estimated at 8%

EMENA/IC&DFC Division
January 1975

ANNEX 24
Appendix 2

TADIRAN ELECTRONICS INDUSTRIES LIMITED

Summary Balance Sheets
(IL million)

	1972	1973	1974	1975	1976	1977
	actual			estimated		
ASSETS						
Current Assets	209	319	510	599	677	767
Investments	9	23	31	66	105	147
Fixed Assets (after depreciation)	72	83	105	182	247	287
TOTAL ASSETS	290	425	646	847	1,029	1,201
LIABILITIES						
Current Liabilities	130	232	415	477	582	672
Long-term Debt	100	122	134	214	231	237
Shareholders Equity 1/	60	71	97	156	216	292
	290	425	646	847	1,029	1,201
FINANCIAL RATIOS						
Current Assets/ Current Liabilities	1.6	1.4	1.2	1.3	1.2	1.1
Long-term Debt/Equity	1.7	1.7	1.4	1.4	1.1	0.8

1/ Includes Government investment grant

EMENA/IC&DFC Division
January 1975

ANNEX 24
Appendix 4

TADIRAN ELECTRONICS INDUSTRIES LIMITED

Summary Profit and Loss Statements
(IL million)

	1972	1973	1974	1975	1976	1977
	actual			estimated		
Sales	264	349	510	900	1,100	1,280
Cost of Sales	207	273	385	688	830	955
Gross Profit	57	76	125	212	270	325
Expenses	41	52	75	114	165	189
Net Income before Taxes	16	24	50	98	105	136
Taxes	4	8	22	43	47	61
Net Income	12	16	28	55	58	75

OPERATING RATIOS

Income Before Tax/ Equity	27%	34%	52%	63%	49%	47%
Net Income/Equity	20%	23%	29%	35%	27%	26%
Net Income/Sales %	4.5	4.6	5.5	6.1	5.3	5.9
Net Income/Share Capital	34%	46%	78%	149%	153%	192%

EMENA/IC&DFC Division
January 1975

Prime Movers (Engines) for On-Site Power Generation

Background and Objectives

1. The Ormat Company developed eight years ago a non-conventional engine using oil or gas as fuel, suitable for driving an electric generator. The engine is essentially a turbo expander based on a closed, Rankine cycle using an organic compound as working fluid. The objective of the proposed subproject is to develop a similar engine which will use locally available low temperature heat or locally available non-fossil fuels. The intention is to provide a relatively low operating cost power unit in situations where the volume of demand does not warrant conventionally powered electric installations. The expected outcome is a family of engines designed and adapted to the following applications:

(1) Village engine (1-5HP) capable of using wood and agriculture waste (e.g. rice hulls, straw, biogas).

(2) Engine for pumping drinking water for people and animals in arid regions, using solar energy (1-5HP).

(3) Engine (5-15HP) for a multipurpose tractor which can use non-fossil fuels.

(4) Power generator (100W - 1KW) for rural TV educational systems and telecommunications.

(5) Conceptual design of a large sized turbogenerator (1-10MW) for electricity production from geothermal energy, solar pond heat or ocean thermal gradients.

Technical Aspects

2. The Ormat Energy Converter (O.E.C.) was originally designed to use solar energy for power generators, but because of the availability of more convenient fossil fuels, it was discontinued. More recently, the engine has been used as a power source for microwave links of relay stations, using conventional fuels. This new market was developed mainly because of the high reliability and unattended, maintenance-free operation of the engine. In cooperation with communication companies, Ormat successfully modified the solar-powered, water-cooled original prototype to a gas - and later oil - fired unit with an air-cooled, natural draft, condenser. Since 1966, over 400 units have been in successful operation all over the world. The first unit is still operating today with no maintenance and has already run for over 70,000 hours. This experience corroborates the feasibility and success of the O.E.C. as a high reliability and maintenance-free power source.

3. The proposed engine, which can use non-conventional low cost fuels as supplementary or exclusive heat sources, is expected to replace the small diesel engine in various village applications and to be adapted for possible use in tractors and other motorized agricultural farm equipment. The study also includes the development of engines fueled from solar energy sources, which would be capable of driving electric generators in small installations. Ormat has already a head start over potential competitors in the technology of Rankine cycle engines. With the increasing cost of conventional fossil type fuels, there is an increased worldwide awareness of the need to develop engines using low temperature differentials.

Proposed R&D

4. The program schedule of the proposed subproject will extend over a period of four years during which the R&D teams will develop commercial scale prototypes of components for the Rankine cycle engines as outlined below: (a) boiler which can run on any fuel; (b) small low cost turboalternators; (c) small size power units; (d) output power control systems of wood and solar boilers; (e) condensers; (f) compact power units; (g) heat supply systems for solar energy converters; (h) 1 MW turboalternators. The estimated cost of the subproject is US$4.6 million, of which US$1.4 million is in foreign exchange.

Market Outlook

5. The market of the family of engines to be developed would be in isolated areas where the maintenance of diesel engines is difficult, or where conventional fuel is expensive or not readily available. The Ormat Company has already been involved in many projects in developing countries and has the necessary experience and appreciation of their special needs and requirements. Therefore, Ormat's competitive position should be strong. Because of the low cost of fuel, unattended and maintenance-free operation and long life, Ormat estimates that the proposed engine of the small size envisaged would result in estimated savings of up to two-thirds of operating costs compared with diesel generator systems of comparable size. Assuming a product mix of 20,000 units at full capacity, the financial (after taxes) and economic rates of return of the subproject, if successful, are 41% and 43% respectively. **(Appendix 1).**

The Company

6. Ormat Turbines Ltd., was formed in 1964 for the purpose of manufacturing small sized turbogenerators. Specializing in electrical power producing systems, it has developed, and is now manufacturing, the Ormat Energy Converter (O.E.C.) which produces low power electricity using the Rankine cycle engine in a continuous, unattended, maintenance-free operation. This aggressive and successful company has grown from 63 employees in 1970 to 130 in 1974, with a forecast of 375 by 1976. The company's annual investment in R&D reached 5% of sales in 1973. Financial statements are shown in Appendices 2 and 3.

Benefits

7. The subproject, if successful, would lead to the introduction of a low-cost and maintenance-free family of prime movers with wide and useful applications in developing countries. For Israel it would generate employment opportunities during the R&D stage and later manufacture, considerable foreign exchange earnings, and would strengthen the R&D capabilities in the country.

Vulnerability

8. A major problem in the product development will be to identify and define the potential market, to eliminate unprofitable ideas and to design a product line accordingly. To this end marketing studies would be an integral part of product development. This will require a close and detailed analysis of the needs of rural communities in developing countries as well as of the likely demand for Rankine cycle engines from rural development programs, agricultural cooperatives, etc. The supposed advantages of Rankine cycle engines over diesel generators for village applications may not survive the test of practice. For example, the absence of maintenance problems may be overshadowed by the higher initial cost of the engine compared to the diesel. Non-conventional fuels may be available during only part of the year, or continue to be diverted to traditional alternative uses. Complementary energy technologies, such as solar, ocean, geothermal and biogas, may not develop as fast as it now seems likely. There may be difficulties in achieving market acceptance for new energy sources for tractors, television sets and pumps.

9. Furthermore, this is a long-range business venture by a small, successful firm which contains some of the weaknesses commonly found in such companies. Technoeconomic and marketing studies were not strong. The commercial viability of the proposed family of engines would therefore have to be under constant review. Also, Ormat would have to work with others who have expertise in the design, fabrication and sales of the items to be powered by the turbines, such as tractors, pumps and television sets. Ormat already has a line of conventional generators. However, a relatively small company with good technological strength can put into commercial application innovative ideas only if it is encouraged and supported during its earlier stages. Ormat's affiliation with the Turbomeca group, which is the world leader in the field of small to medium gas turbines, is extremely valuable and should help Ormat capture a sufficiently large share of the prospective market for the proposed new engines.

ANNEX 25
Appendix 1

ORMAT TURBINES LTD

Financial and Economic Calculations
(IL Thousand)

Year	R & D Expenditures		Investment Costs[1]		Operating Costs[2]		Benefits	
	Financial	Economic	Financial	Economic	Financial	Economic	Financial	Economic
1	2730	5995						
2	2230	5185						
3	1866	4339						
4	1148	2815						
5			5270	4550				
6			13370	12290				
7			6000	5600	42060	33710	48000	40000
8					71280	52880	84000	70000
9					121930	72480	156000	130000
10-20					194450	129270	240000	200000
21							12000	10000

1/ Gross working capital included.
2/ Includes R&D expenditures after the 4th year.

Sensitivity Tests

I. Financial Rates of Return	Rates of Return
Before taxes	58%
After taxes	43%
Excluding grant for R & D	32%
Including grant for R & D (65%)	43%
R & D expenditure increased by 100%	35%
Operating costs increased by 15%	26%
Sales revenue increased by 15%	55%
Sales revenue decreased by 15%	21%
Operating costs increased by 25%	11%
Investment costs increased by 50%	39%
Sales revenues decreased by 25%	-1%

II. Economic Rates of Return	Rates of Return
As projected	41%
R & D expenditure increased by 100%	32%
Investment costs increased by 50%	39%
Operating costs increased by 25%	31%
Sales revenue increased by 15%	48%
Sales revenue decreased by 25%	22%

EMENA/IC & DFC Division
January 1975

ORMAT TURBINES LIMITED

Summary Balance Sheets
(IL '000)

	1973	1974	1975	1976	1977	1978
	----actual----		----------estimated----------			
ASSETS						
Current Assets	6,752	16,840	24,000	50,000	55,000	65,000
Investments	314	703	-			
Fixed Assets (after depreciation)	3,545	4,355	6,250	7,500	7,750	8,000
Long-term Loan	366	216	100	-	-	-
Total Assets	10,977	22,114	30,350	57,500	62,750	73,000
LIABILITIES						
Current Liabilities	5,604	15,775	20,000	42,000	42,250	48,000
Long-term Debt	2,371	2,216	2,500	2,000	1,500	1,000
Various Provisions	484	534	2,000	2,500	3,500	5,000
Government Investment Grant	402	666	850	1,000	1,000	1,000
Shareholders Equity	2,116	2,923	5,000	10,000	14,500	18,000
Total Liabilities	10,977	22,114	30,350	57,500	62,750	73,000
FINANCIAL RATIOS						
Current Assets/ Current Liabilities	1.2	1.1	1.2	1.2	1.3	1.4
Long-term Debt/Equity	0.9	0.6	0.4	0.2	0.1	0.1

EMENA/IC & DFC
March 1975

ORMAT TURBINES LIMITED

Summary Profit and Loss Statements
(IL '000)

	1973	1974	1975	1976	1977	1978
	----actual----		----------estimated----------			
Sales	8,201	9,793	36,000	80,000	100,000	125,000
Cost of Goods Sold	5,710	5,676	22,630	44,400	58,000	74,250
Gross Profit	2,491	4,117	13,370	35,600	42,000	50,750
Administrative, Financial and Selling Expenses	2,019	2,800	6,370	21,600	27,000	33,750
Development Expenses	380	510	2,500	5,000	5,000	5,000
Net Profit	92	807	4,500	9,000	10,000	12,000

Operating Ratios

Net Profit/Equity	3.6%	22.4%	76.9%	81.8%	64.5%	63.1%
Net Profit/Sales	1.1%	8.2%	12.5%	11.2%	10.0%	9.6%

EMENA/IC & DFC
March 1975

Transverse Section Tomographic Scanner

Background and Objectives

1. Transverse section scanning is a new radiological method, introduced recently by the British company EMI, whereby changes of density within the brain may be detected and located in three dimensions, thus enabling location of tumors with great accuracy. It uses computers and X-rays to detect density changes. The EMI scanner sells for US$350,000 per system and is thought to be one of the most important innovations in the field of X-rays. Elscint proposes to develop a more versatile and higher performance scanner than is currently available.

Technical Aspects

2. The EMI instrument currently on the market scans only the brain in several minutes and analyzes the results in an additional number of minutes. During the scanning, the patient has to be immobilized. For this reason, the method has proved to be excellent with organs like the brain that can effectively be immobilized for several minutes but not applicable for organs like the lungs or heart, where immobilization becomes impractical. EMI is now testing a machine which extends the application of the scanner to moving organs of the body and expects to market a body scanner in the near future at an estimated price of US$550,000. A tomograph called ACTA from Georgetown University Hospital is also on the market and another is expected from Stanford University. In addition to Elscint, Siemens, Pfizer, General Electric, Artronix and Ohio Nuclear are showing an interest in the field.

3. The purpose of the project is to enable Elscint to compete in the expanding world market for body scanners with a state-of-the-art product of its own design. Elscint proposes to reduce the scanning time to several seconds, to lower the price of the equipment, and to increase the flexibility of the instrument by incorporating a number of novel features. These goals are ambitious but worthwhile. Elscint believes that novel technological features in the design, the sensor elements, the data processing and the image reconstruction techniques will enable their tomograph to reduce its scanning time to about ten seconds. Ongoing efforts will be directed to take advantage of new technology in the development of detectors. The project is technically feasible. The technological and human resources to successfully develop the product are available at Elscint. The higher speed, the novel technological features, and the much lower price should enable the Elscint body scanner to effectively compete with rival scanners.

Proposed Research

4. The objective of the project is to develop a more versatile and advanced system which will produce computerized tomographic slice images and which will sell at an estimated price of US$250,000, thus giving the opportunity to Elscint to participate in a large, sophisticated and developing market.

This program extends over a period of two years and the total budget required amounts to US$2.3 million, with a foreign exchange component of US$0.9 million (Annex 27).

Market Outlook

5. Elscint estimates that some 5,000 hospitals over the world having more than 200 beds each will equip themselves with a transverse section scanning instrument by 1986. Elscint expects to capture 7 to 8% of the world market and to sell over 350 units over the 10-year period 1977-86. Assuming that Elscint's share of the potential market is 6% or 300 units and a selling price of US$250,000 per unit, both conservative estimates, the financial (after taxes) and economic rates of return of the project would be 30% and 13%, respectively (Appendix 1). Should Elscint be able to establish a lead in the field and to develop a highly successful machine, its share of the market and profitability would be further enhanced.

6. The local market for the tomographic scanner will be very limited and the bulk of the output will be exported, mostly to advanced countries. There is also the possibility of foreign licensing. No revenue from this potential source has been imputed in calculating financial and economic returns. Competition from existing and new competitors is very likely to be severe. On the other hand, new entry attests to the need for this type of equipment and offers good grounds for supporting its development. The continuing commercial viability of the subproject will have to be checked by conducting annual in-depth market studies and by close follow-up of technological developments in the field. These studies, to be prepared by Elscint, will be reviewed by OCS and the Bank.

The Company

7. Elscint Ltd., a high-technology company, was established in 1969 and is engaged primarily in the development, manufacture, marketing and servicing of nuclear medical equipment, nuclear scientific instruments and systems, and diverse low and high voltage power supplies for adjusting electrical power to specified frequency, voltage and current. Three subsidiaries market and service the company's equipment sold in Europe. General Electric markets and services the nuclear medical equipment sold in the U.S. and Canada. In 27 other countries, the company operates through local independent agents. Elscint's R&D department employs 160 out of the company's 700 employees, including 80 scientists and engineers. Close to 13% of sales goes into R&D and engineering. The company's manufacturing plant is located in Haifa, Israel. Most components are imported from several suppliers and the company is not dependent upon any single source of supply. Metal parts are mostly fabricated by the company. Assembly and test operations are performed by assembly personnel and technicians supported by supervisors and engineers. Elscint is a well-managed, aggressive and financially sound enterprise (financial statements are appended), has an impressive record on product development, and it should be capable of handling effectively the proposed R&D activity.

Benefits

8. The proposed subproject leads to the creation of a high-technology export product, thus contributing to Israel's foreign exchange earnings. Also, as with all projects of this nature, it should prove valuable in strengthening the R&D capability of the country and its capability for launching new products on international markets, and should generate employment opportunities for scientists and highly-skilled workers.

Vulnerability

9. International competition exists and is expanding. Patent rights problems may also arise, and would have to be resolved.

ELSCINT LTD

Financial and Economic Calculations
(IL Thousand)

Year	R & D Expenditures		Investment Costs[1]		Operating Costs[2]		Benefits	
	Financial	Economic	Financial	Economic	Financial	Economic	Financial	Economic
1	2300	6130						
2	1370	3630						
3			10000	9800	11300	10230	14400	12000
4					11300	10230	14400	12000
5			15000	14740	11300	10230	14400	12000
6					27840	25140	36000	30000
7			23400	22560	27840	25140	36000	30000
8-16					68770	61540	86400	72000
17					68770	61540	93600	78000

1/ Gross working capital included.
2/ Include R&D expenditures after 2nd. year.

Sensitivity Tests

I. Financial Rates of Return	Rates of Return
Before taxes	37%
After taxes	30%
Excluding grant for R & D	23%
Including grant for R & D (65%)	30%
R & D expenditure increased by 100%	26%
R & D expenditure decreased by 50%	34%
Investment costs increased by 25%	25%
Investment costs decreased by 25%	38%
Operating costs increased by 15%	2%
Operating costs decreased by 15%	49%
Sales revenue increased by 15%	51%
Sales revenue decreased by 15%	-20%

II. Economic Rates of Return	Rates of Return
As projected	13%
R & D expenditure increased by 100%	9%
R & D expenditure decreased by 50%	16%
Investment costs increased by 15%	11%
Operating costs increased by 15%	-11%
Operating costs decreased by 15%	26%
Sales revenue increased by 15%	28%
Sales revenue decreased by 15%	-20%
Investment costs decreased by 15%	15%

EMENA/IC&DFC Division
January 1975

ELSCINT LIMITED

Summary Consolidated Balance Sheets 1/
(IL '000)

	1972	1973	1974	1975	1976
		actual		estimated	
ASSETS					
Current Assets	12,645	24,237	44,882	63,370	72,120
Investment and Deferred charges	500	1,118	2,441	4,620	7,780
Fixed Assets (after depreciation)	1,814	3,425	6,310	7,550	9,590
Total Assets	14,959	28,780	53,633	75,540	89,490
LIABILITIES					
Current Liabilities	10,826	11,709	31,892	46,940	50,330
Long-Term Debt 2/	1,471	823	2,368	3,600	5,050
Equity	2,662	16,248	19,373	25,000	34,110
(Share & Paid-in Capital)	(12,456)	(12,996)	(12,996)	(12,996)	(12,996)
Total Liabilities	14,959	28,780	53,633	75,540	89,490
FINANCIAL RATIOS					
Current Assets/Current Liabilities	1.2	2.1	1.4	1.4	1.4
Long-term Debt/Equity	0.6	0.1	0.1	0.1	0.1

1/ Year ending March 31
2/ Includes various provisions
3/ Includes Government investment grant

EMENA/IC&DFC Division
January 1975

ELSCINT LIMITED

Summary Consolidated Profit and Loss Statements 1/
(IL '000)

	1972	1973	1974	1975	1976
	actual			estimated	
Sales					
Exports	7,212	15,045	26,164	38,540	55,820
Local	4,504	7,919	5,675	17,385	26,120
Commissions	194	215	125		
Total	11,910	23,179	31,964	55,925	81,940
Cost of Sales					
Cost of goods sold	3,665	9,185	14,392	25,953	38,980
Engineering and R&D	2,797	3,777	4,132	6,387	7,400
Total	6,462	12,962	18,524	32,340	46,380
Gross Profit	5,448	10,217	13,440	23,585	35,560
Expenses					
Selling	2,268	4,139	6,383	8,622	13,200
Administrative	618	994	1,813	2,400	3,600
Total	2,886	5,133	8,196	11,022	16,800
Financial Expenses	735	669	1,216	2,651	4,350
Net Income (before Taxes)	1,841	4,461	4,028	9,912	14,410
Taxes	632	1,479	646	3,170	5,300
Net Income	1,208	2,982	3,382	6,742	9,110
Operating Ratios					
Income before Tax/Equity	69%	28%	21%	40%	42%
Net Income/Equity	45%	18%	18%	27%	27%
Net Income/Sales	10%	13%	11%	12%	11%
Net Income/Share Capital	49%	19%	18%	27%	26%

1/ Year ending March 31

EMENA/IC&DFC Division
January 1975

RESEARCH AND DEVELOPMENT COMPONENT

Projections of R&D Expenditures[1/]
(millions)

Subproject	Project Duration Years	Construction IL	Construction $	Equipment IL	Equipment $	Materials/ Services IL	Materials/ Services $	Salaries IL	Salaries $	Other[2/] IL	Other[2/] $	Total Local Expenditure[3/] IL	Total Local Expenditure[3/] $	Total Foreign Exchange Component $	Total Cost of Project $	IBRD Funding $	% Foreign Exchange Financed by IBRD %
I. *Infrastructure*																	
1. Multi-disciplinary R&D Facility	5	5.1	-	1.5	1.9	7.1	1.0	12.8	0.2	2.5	0.3	29.0	4.8	3.4	8.2	1.65	49
II. Pre-Commercial Development																	
2. Solar Ponds	3	-	-	2.3	0.1	2.4	0.1	2.4	-	1.5	0.1	8.6	1.4	0.3	1.7	0.30	100
3. Jojoba Beans (Wax)	5	1.1	-	0.4	0.4	0.6	0.1	3.4	0.1	0.6	0.1	6.1	1.0	0.6	1.6	0.40	66
III. Commercial Prototype Development																	
4. Rural Telephone System	4	-	-	0.6	0.7	1.9	0.7	10.1	0.3	0.1	0.1	12.7	2.1	1.8	3.9	1.00	55
5. Prime Movers	4	1.0	0.2	4.2	1.0	-	-	11.6	-	2.5	0.2	19.3	3.2	1.4	4.6	0.95	68
6. Tomographic Scanner	2	-	-	0.2	0.2	1.5	0.6	4.7	0.1	1.9	-	8.3	1.4	0.9	2.3	0.55	61
Technical Assistance to OCS		-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.15	100
Total		7.2	0.2	9.2	4.3	13.5	2.5	45.0	0.7	9.1	0.8	83.5	13.9	8.4	22.3	5.0	60

1/ The following inflators were used:

--For imported equipment and materials:	1975: 13%;	1976: 11%;	1977: 9%;	1978: 8%;	1979: 7%.
--For construction expenses:	1975: 25%;	1976: 20%;	1977: 15%;	1978: 10%;	1979: 8%.
--For locally produced equipment and materials:	1975: 25%;	1976: 20%;	1977: 15%;	1978: 10%;	1979: 7%.
--For local salaries:	1975: 20%;	1976: 15%;	1977: 10%;	1978: 8%;	1979: 7%.
--For foreign salaries and associated costs:	1975: 10%;	1976: 10%;	1977: 10%;	1978: 10%;	1979: 10%.

2/ Administration expenses, marketing expenses, etc.

3/ Local expenditures were converted into US $ at the rate of IL 6 = US$1.

EMENA/IC&DFC Division
April 1975

ANNEX 27

Functions of the Office of the Chief Scientist (OCS)

1. The basic responsibilities of the OCS are to (a) implement the Government's policies for industrial R&D; (b) advise the Minister on matters related to industrial R&D and ecology; (c) bring together the research community with entrepreneurs in a concerted effort to direct industrial research to the most promising applied fields; and (d) generate employment opportunities for immigrant scientists. The operating responsibilities of the OCS are to (a) administer the matching fund program through the Research and Development Fund Administration; 1/ (b) appraise and supervise national laboratories, grouped under the Industrial Research Administration; (c) administer the science-based industrial parks; and (d) to administer the new program of R&D in projects of "national importance."

2. The institutes under OCS's supervision are shown in Annex 29. The Chief Scientist discharges his supervisory function by chairing the Board of the Industrial Research Administration under which the institutes are grouped (see Appendix 1). The major problems the institutes face are: weak organization, sub-standard performance, and excessive emphasis on basic research. The appraisal and supervision of R&D projects under the matching funds program (para. 2.08) is the responsibility of the Research Committee under the Chairmanship of the Chief Scientist. The members of the committee (see Appendix 2) are selected from among experts in the various divisions of the Ministry of Commerce and Industry. As the committee now stands, the appraisal inputs (technical and economic) are rather low. The Chief Scientist proposes to bring about changes to improve its functioning, in light of past experience as well as of that to be gained from the administration of the projects of national importance. On the whole, OCS is confronted with an array of problems in the discharge of his functions, such as improving the performance of the institutes, strengthening the procedures for project appraisal and supervision work,, recruiting qualified staff, and reorienting industrial research. The Chief Scientist has a thorough grasp of the issues and is working out plans to resolve them.

1/ Industrial research partly funded by the Government is now being pursued in fields such as control systems and tooling for mechanized agriculture, textiles, and the diamond-cutting industry; medical instrumentation and diagnostic equipment; educational aids, including teaching machines; and mineral process design facilities including chemical testing laboratories and pilot plants. Other areas of advanced technological specialization include mini-computers and peripherals; enzymes, pharmaceuticals, and other industrial materials (such as rubber and wax) from desert plants. Fish culture in subtropical waters, edible protein from algae cultures, solar ponds as an energy source, frozen and dehydrated products, desalination and waste recycling systems, biomedical diagnostic systems, rural communications and small-scale fuel-energy systems, are other areas now being explored intensively.

INDUSTRIAL RESEARCH ADMINISTRATION
BOARD OF DIRECTORS
(As of October 31, 1974)

1. Prof. Y. Yaakov, Chief Scientist (Chairman)
2. Dr. Ben Tovin, Director, Industry
3. Mr. A. Goldberg, Technician
4. Mr. A. Gafni, Ministry of Finance, Budgets
5. Dr. E. Tal, Director, Council for R&D, Prime Minister Office
6. Prof. Ne'eman, President, Tel Aviv University
7. Mr. M. Amit, Director, Koor Industries
8. Mr. S. Kalir, Director, Argaman Textile Industry
9. Prof. S. Shtrickman, Professor, Weizman Institute
10. Dr. M. Zirin, Managing Director, OCS

Source: Office of Chief Scientist

ANNEX 28
Appendix 2

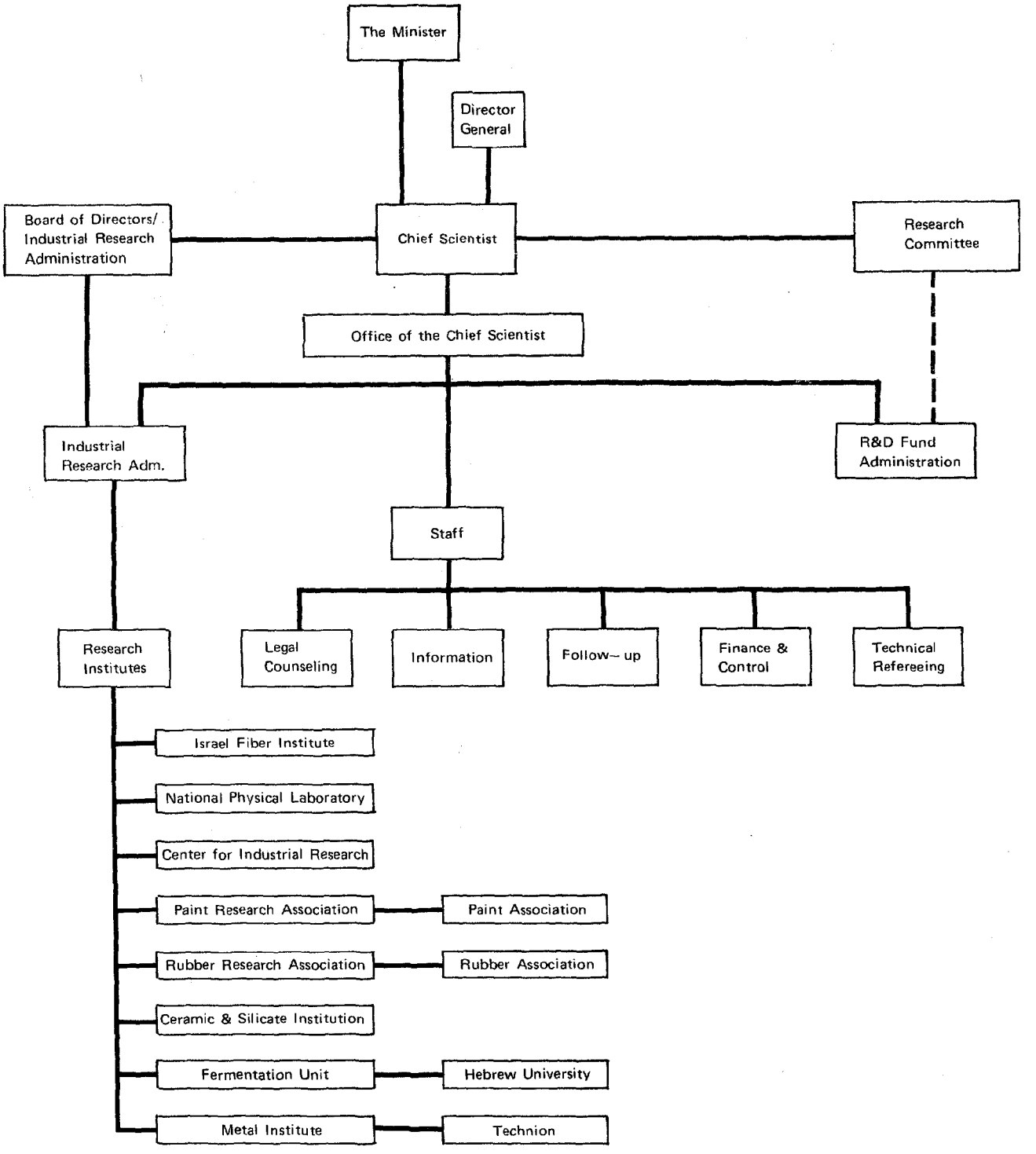
OFFICE OF CHIEF SCIENTIST
RESEARCH COMMITTEE
(As of October 31, 1974)

1. Prof. Y. Yaakov, Chairman
2. Dr. M. Zirin, Alternate Chairman
3. Mr. Z. Elon, OCS
4. Mr. R. Pridor, OCS
5. Dr. Elshtein, Food, Chemicals Division
6. Mr. Gur-Arye, Textile and Leather Division
7. Mr. Arazi, "Light Industry" Division
8. Mr. Asheri, Electronic and Machines Division
9. Mr. Reis, Patent Office
10. Mr. Esnei, Council for R&D (Prime Minister Office)
11. Dr. Kela, Ministry of Communication
12. Mr. M. Ostern, Administrator of the Fund

Source: Office of Chief Scientist

ANNEX 29

OFFICE OF CHIEF SCIENTIST
ORGANIZATION CHART
as of October 31, 1974



SOURCE: Office of Chief Scientist, Ministry of Commerce and Industry

World Bank-9430

RESEARCH AND DEVELOPMENT COMPONENT

Schedule of Estimated Quarterly Disbursements
(US$ Thousand)

Year	Quarter	Cumulative Disbursement	Cumulative Percent Disbursed
1975	3	250	5.0
	4	600	12.0
1976	1	1,000	20.0
	2	1,420	28.4
	3	1,880	37.6
	4	2,330	46.6
1977	1	2,730	54.6
	2	3,080	61.6
	3	3,410	68.2
	4	3,670	73.4
1978	1	3,870	77.4
	2	4,050	81.0
	3	4,210	84.2
	4	4,360	87.2
1979	1	4,500	90.0
	2	4,640	92.8
	3	4,770	95.4
	4	4,890	97.8
1980	1	4,950	99.0
	2	5,000	100.0

EMENA/IC & DFC Division
January 1975

ISRAEL: Education and Training System

The School System

1. Responsibility for the school system is shared between the Ministry of Education and Culture and a number of municipal and rural district authorities. The latter are responsible for the construction and maintenance of the schools and for recurrent costs other than teachers' salaries. The Ministry of Education is responsible for the curriculum, inspection, examinations and selection and appointment of teaching staff. The system comprises pre-kindergarten (ages 3 to 4 years), kindergarten (age 5 years), and primary through secondary schools (grades 1 to 12).

2. Prior to the adoption of structural reforms in 1968, primary education covered grades 1 to 8, and secondary education grades 9 to 12; the reform reduced the length of primary education to 6 years, and introduced junior and senior secondary schools each of 3 years duration. The transition has been slowed down due to lack of suitable accommodations and was not more than 30% complete at the end of 1974. Attendance is compulsory from the age of 5 (kindergarten) to 15 and will be extended to include 16 year olds when the reform is complete. Tuition is free at the kindergarten and primary levels.

3. An unusual feature of the Israeli education system is the high proportion of secondary school pupils (65% boys, 35% girls) following technical courses either in technical secondary schools or in the technical streams of the new comprehensive secondary schools. A common core of subjects enables the pupils of both the general and technical secondary schools to sit for the "Bagrut" examination giving admission to university-level institutions.

Vocational Education and Training

4. The Department for Vocational Training within the Ministry of Labor is generally responsible for craft training given to both youths and adults. Training programs for youth (ages 14 to 16) includes, inter alia, one year full-time pre-apprenticeship courses, apprenticeship programs (3 to 4 years) with 1 to 3 days per week in school and industrial school programs providing both general and technical education and training of 3 to 4 years duration. Adult craft training courses are organized on either a full-time or part-time basis. The former normally extend over a period of 3 to 13 months, sufficient to establish a high level of operative skill in a particular field. Short-term refresher and up-grading courses are also arranged for workers from industry.

Technician Education and Training

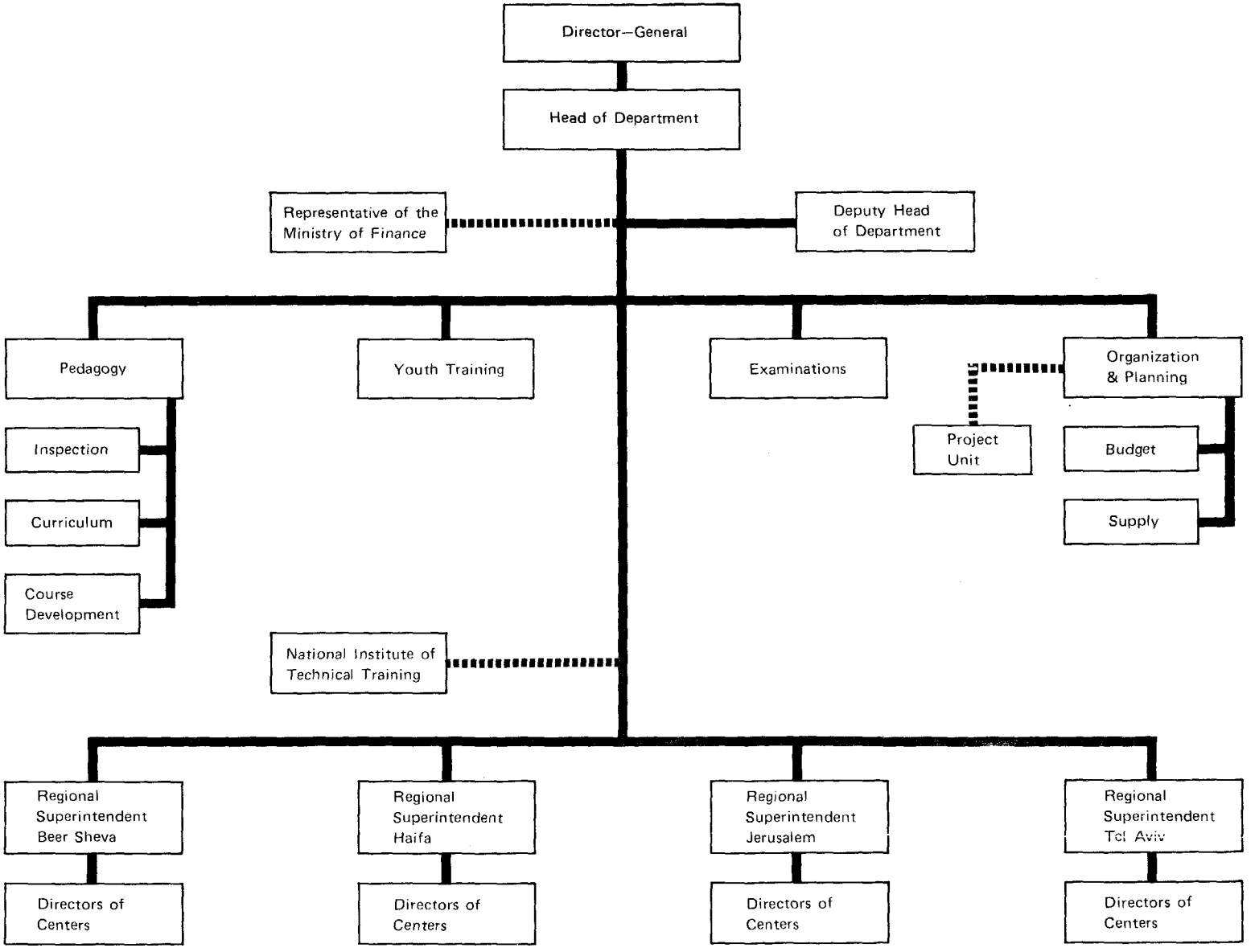
5. The responsibility for technical training rests mainly with the Ministry of Labor (adult programs) and to a lesser degree with the Ministry of Education (youth programs); in both cases, coordination of programs is effected through the National Institute for Technological Training and Coordination Councils established in each of the training institutions. Two

methods of training, sometimes combined in the same institution, are currently in operation. A number of technical secondary schools have extended programs (grades 13 and 14) for qualified students. Students successfully completing the grade 13 programs are qualified as technicians, those completing grade 14 level programs are qualified as "practical engineers" (senior technicians). Alternatively, the student may attend adult courses following completion of military service. In this case, it is usual for separate one and two-year full-time courses to be arranged for qualification as "technician" and "practical engineer", respectively. As in the case of the extended technical secondary school, the qualifications may also be obtained by attendance at part-time courses of two (technician) and four years (practical engineer) duration. Completion of the several courses requires the preparation of a technical research project undertaken either in industry or in the school over a six to twelve month period.

University Education and Training

6. Authority for this level of education is vested in a Council for Higher Education created by an Act of Parliament in 1958, with the Minister of Education and Culture as ex-officio chairman. Seven universities have so far been established under the 1958 Act. Each institution is given full responsibility within the Act for their academic and administrative affairs up to the limit of an approved budget. With respect to the budget, the government contributes about 40% of the capital development expenditures and 60% is provided by private sources: the total recurrent budget is provided by the Jewish Agency. Tuition fees account for 8% to 10% of the recurrent budget.

ISRAEL
Ministry of Labour—Structure of the Vocational Training Department, 1974

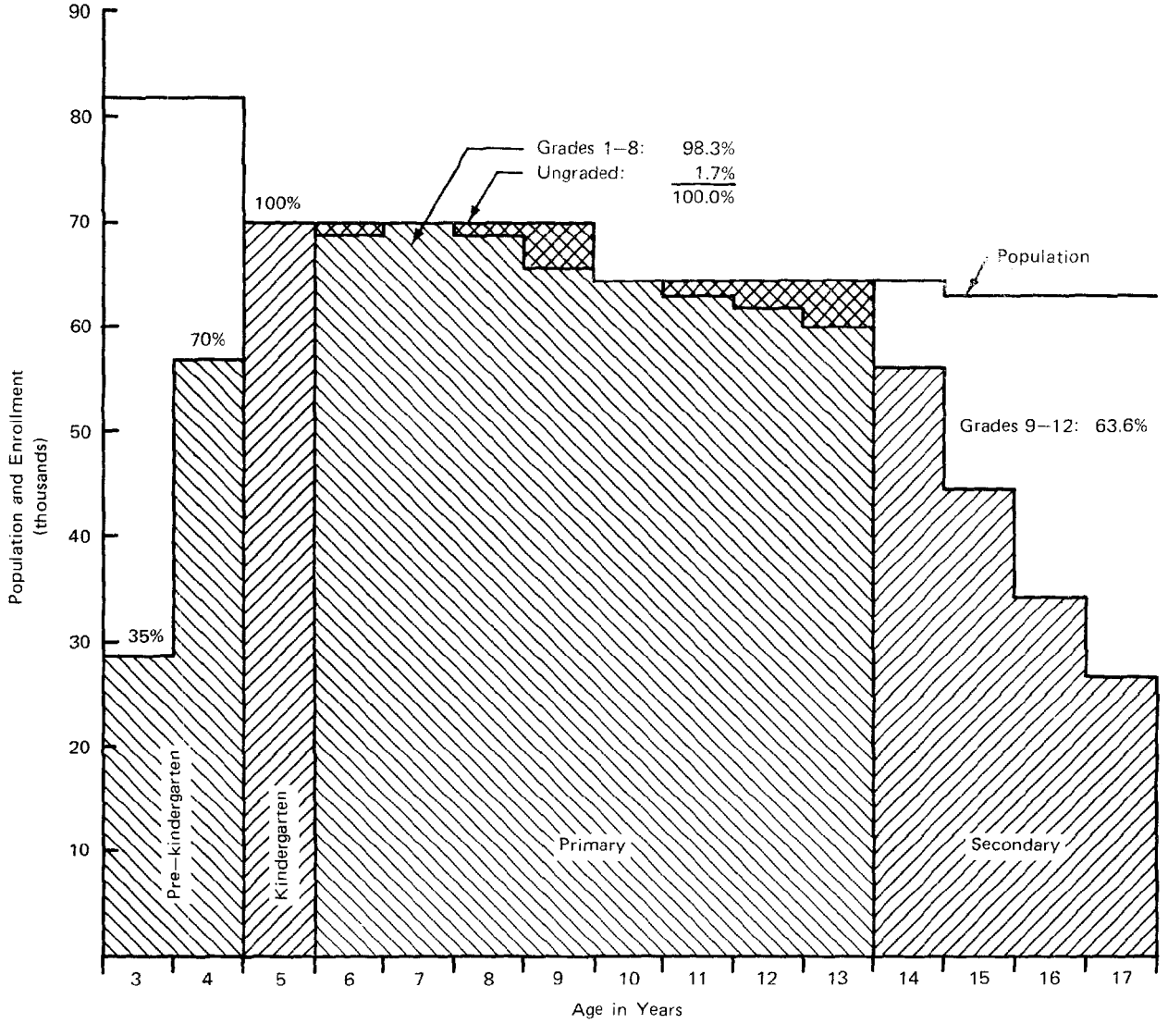


Source: Ministry of Labor – Department of Vocational Training
January 1975

World Bank–9528

ANNEX 32

ISRAEL
Population by Age Group and Enrollment by Educational Level, 1973



Source: Ministry of Education
January 1975

World Bank–9527

ISRAEL

NATIONAL EXPENDITURE ON EDUCATION, FY 1963-72
(I£ million)

Type of Expenditure	FY 1963 Amount	%	FY 1967 Amount	%	FY 1969 Amount	%	FY 1971 Amount	%	FY 1972 Amount	%
Recurrent Expenditure										
Kindergarden Education	19.4	6	48.3	7	59.9	7	73.1	6	98.1	6
Primary Education	114.9	38	271.0	37	282.4	33	372.9	32	498.0	33
Secondary Education	77.2	25	188.2	26	238.5	28	304.6	26	404.1	26
Higher Education	41.3	14	131.2	18	172.4	20	274.8	24	368.9	24
Other	53.0	17	85.5	12	101.9	12	131.7	12	163.0	11
Sub-Total	305.8	100	724.2	100	855.1	100	1,157.1	100	1,532.1	100
Total recurrent expenditure	305.8	81	724.2	81	855.1	83	1,157.1	81	1,532.1	80
Capital expenditure	70.3	19	166.1	19	176.5	17	272.6	19	381.6	20
Total expenditure	376.1	100	890.3	100	1,031.6	100	1,429.7	100	1,913.7	100

Source: **Central Bureau of Statistics, "Statistical Abstract of Israel, 1974".**

January 1975

ANNEX 34

ISRAEL: National Expenditure on Education, by Agency and Type of Expenditure
(IL million)

Type of expenditure	FY 1972				
	Other	Non-profit institutions	Local authorities	Government	Total
NATIONAL EXPENDITURE ON EDUCATION - GRAND TOTAL	93.7	873.3	375.4	571.3	1,913.7
Current expenditure - total	93.7	665.4	247.5	525.5	1,532.1
Percent by agency - total	6%	44%	16%	34%	100%
Administrative expenses in the public sector	-	-	9.8	42.1	51.9
Kindergartens	8.0	29.2	37.6	23.3	98.1
Elementary schools	-	50.3	86.1	361.6	498.0
Secondary schools	-	84.9	80.8	31.1	196.8
Vocational and agricultural schools	21.7	128.9	26.5	30.2	207.3
Universities and other institutions of higher education	-	339.5	0.7	28.7	368.9
Adult education, religious institutions and others	64.0	32.6	6.0	8.4	78.4
Capital formation in fixed assets - total	..	207.9	127.9	45.8	381.6
Percent by agency - total	..	54%	34%	12%	100%
Building and construction work	..	157.5	118.1	39.2	314.8
Machinery and equipment	..	50.4	9.8	6.6	66.8
Interest and linkage adjustments on loans for educational services	..	30.1	45.0		

Source: Central Bureau of Statistics "Statistical Abstract of Israel 1974" January 1975

ISRAEL: Projection of Employment by Sectors 1970-1985 (in thousands)

Economic Sector	1970 Employment	%	1975 Projected Employment (Govt. Projection)	%	Annual Growth Rate 1970-1975	1985 Projected Employment	%
1. Agriculture, Forestry and Fishing	99.0	10.1	94.0.	8.0	(-)1.0	85	(5.6)
2. Industry (mining and manufacturing)	263.3	26.9	340.0	28.9	5.3	631	(41.3)
3. Construction	82.5	8.4	90.0	7.7	1.8	95	(6.2)
4. Transport and Communications	72.0	7.4	86.1	7.3	3.6	98	(6.4)
5. Public Utilities	20.0	2.0	21.0	1.8	1.1	24	(1.5)
6. Commerce, Restaurants and Hotels + Banking & Financing	149.0	15.2	183.0	15.6	4.1	215	(14.2)
7. Education	76.0	7.8	98.0	8.3	5.0	102	(6.8)
8. Health	40.4	4.1	53.0	4.5	5.6	54	(3.5)
9. Other Public & Community Services	97.0	9.9	119.0	10.1	4.1	115	(7.5)
10. Private Services	80.0	8.2	92.0	7.8	2.8	107	(7.0)
TOTAL CIVILIAN EMPLOYMENT	979.2	100.0	1,176	100.0	3.7	1,526	(100.0)

Source: Central Bureau of Statistics
January 1975

ANNEX 36

ANNEX 37

Israel: Estimated Requirements of Middle and High Level Technicians (1970-1985)

	1970 Stock of Technicians /1	1970 Stock Surviving to 1985 /2	1985 Stock Required	Net Demand	Average Annual Demand
1. Agriculture	600	400	1,000	600	40
2. Industry	8,700	5,200	26,000	20,800	1,400
3. Construction	5,300	3,200	6,000	2,800	190
4. Transportation	4,700	2,800	7,000	4,200	280
5. Public Utilites	1,000	600	1,000	400	30
6. Commerce and Banking	10,500	6,300	16,000	9,700	650
7. Education	33,900	20,200	37,000	16,800	1,120
8. Health	9,800	5,800	13,000	7,200	480
9. Other Public and Community Services	14,700	8,800	20,000	11,200	750
10. Private Services	3,900	2,300	5,000	2,700	180
TOTAL	93,100	55,600	132,000	76,400	5,120

/1 Population and Employment Projections 1970-1975

/2 Assuming an attrition rate of 3.5% p.a.

Source: Central Bureau of Statistics
January 1975

ANNEX 38

Israel: Estimated Output of Project Institutions (1980)

Institutions	Training Places			Output (double shift)		
	Existing	Added	Total	Existing	Added	Total
Vocational Training Centers						
Tel Arza (Jerusalem)	165	210	375	220	235	445
Kiryat Sprinzak (Haifa)	180	220	400	270	330	600
Kiryat Hamelaka 1/ (Tel Aviv)	nil	210	210	nil	315	315
Holon (Tel Aviv Region)	165	210	375	220	235	
Sub-Total	510	850	1,360	710	1,115	1,825
Technical Institutes						
Beer Sheva	300 3/	280	580	225	215	440
Technician (Haifa)	1,100	nil	1,100	775	nil	775
ORT (Jerusalem) 2/	nil	480	480	nil	415	415
Sub-Total	1,400	760	2,160	1,000	630	1,630

1/ Existing accommodations being reconstructed for use under project.

2/ Accommodations nearing completion: part equipment to be supplied under project.

3/ Not including about 250 places in rented temporary facilities.

Source: Ministry of Labor "Projects for Development", Part B.
January 1975

ISRAEL

Project Costs by Type of Expenditure

	Israeli £			US $			% of
	Local	Foreign	Total	Local	Foreign	Total	Total
	(millions)						
Construction Academic & Communal Facilities	27.5	6.5	34.0	4.6	1.1	5.7	54.8
Site Development	3.7	0.4	4.1	0.6	0.1	0.7	6.7
Cons. Architects' Services	4.4	0.2	4.6	0.7	0.0 1/	0.7	6.7
Sub-Total	35.6	7.1	42.7	5.9	1.2	7.1	68.2
Furniture	2.4	1.0	3.4	0.4	0.2	0.6	5.8
Equipment	0.8	15.4	16.2	0.2	2.5	2.7	26.0
Total Project Cost excluding Contingencies	38.8	23.5	62.3	6.5	3.9	10.4	100.0
Contingencies	24.5	7.8	32.3	4.1	1.3	5.4	51.9
Total Project Cost	63.3	31.3	94.6	10.6	5.2	15.8	

1/ About US$40,000.

EMENA/Education and Manpower Development Division
January 1975

ISRAEL - VOCATIONAL/TECHNICAL TRAINING COMPONENT

Contingency Allowances (US$ thousands - rounded)

	Construction		Site Development		Professional Services		Furniture		Equipment		Total		
	Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign	Local	Foreign	Total
Percentage of Local/ Foreign	81%	19%	90%	10%	95%	5%	70%	30%	5%	95%			
Baseline Cost	4591.0	1076.9	620.4	69.0	724.6	38.2	396.8	170.0	134.5	2555.0	6467.3	3909.1	10376.4
Unforeseen physical increase in %	10%	10%	10%	10%	10%	10%	5%	5%	5%	5%	9.6%	6.5%	8.4
in US$	459.1	107.7	62.0	6.9	72.5	3.8	19.8	8.5	6.7	127.8	620.1	254.7	874.8
Sub-total	5050.1	1184.6	682.4	75.9	797.1	42.0	416.6	178.5	141.2	2682.8	7087.4	4163.8	11251.2
Price Increase in %	56%	37.5%	31%	31%	39%	24%	20%	20%	20%	20%	48.8%	25.2%	40.1
in US$	2828.1	444.0	211.6	23.5	310.9	10.0	83.3	35.7	26.8	537.2	3460.7	1050.4	4511.1
Total Contingencies	3287.2	551.7	273.6	30.4	383.4	13.8	103.1	44.2	33.5	665.0	4080.8	1305.1	5385.9
Total Project Cost	7878.2	1628.6	894.0	99.4	1108.0	52.0	499.9	214.2	168.0	3220.0	10548.1	5214.2	15762.3

EMENA/Education and Manpower Development Division
January 1975

ANNEX 10

ISRAEL

Estimated Recurrent Expenditure for the Project Institutions
(Israeli Pounds)

Institute	FY 1979		
	Student Places	Cost per Student Place 1/ (Rounded)	Recurrent Expenditure
Vocational Training Centers	1,360	7,700	10,472,000
Technical Institutes	2,160	11,000 2/	23,760,000
Total	3,520		34,232,000 3/

1/ Includes subsidies and family and travel allowances.
2/ Weighted average of day and evening programs for practical engineers and technicia
3/ About 2.1% of estimated recurrent expenditure on education.

Source: Ministry of Labor "Projects for Development", Part B.
January 1975

ISRAEL

Vocational/Technical Training Component

Estimated Disbursement Schedule
(US$ millions)

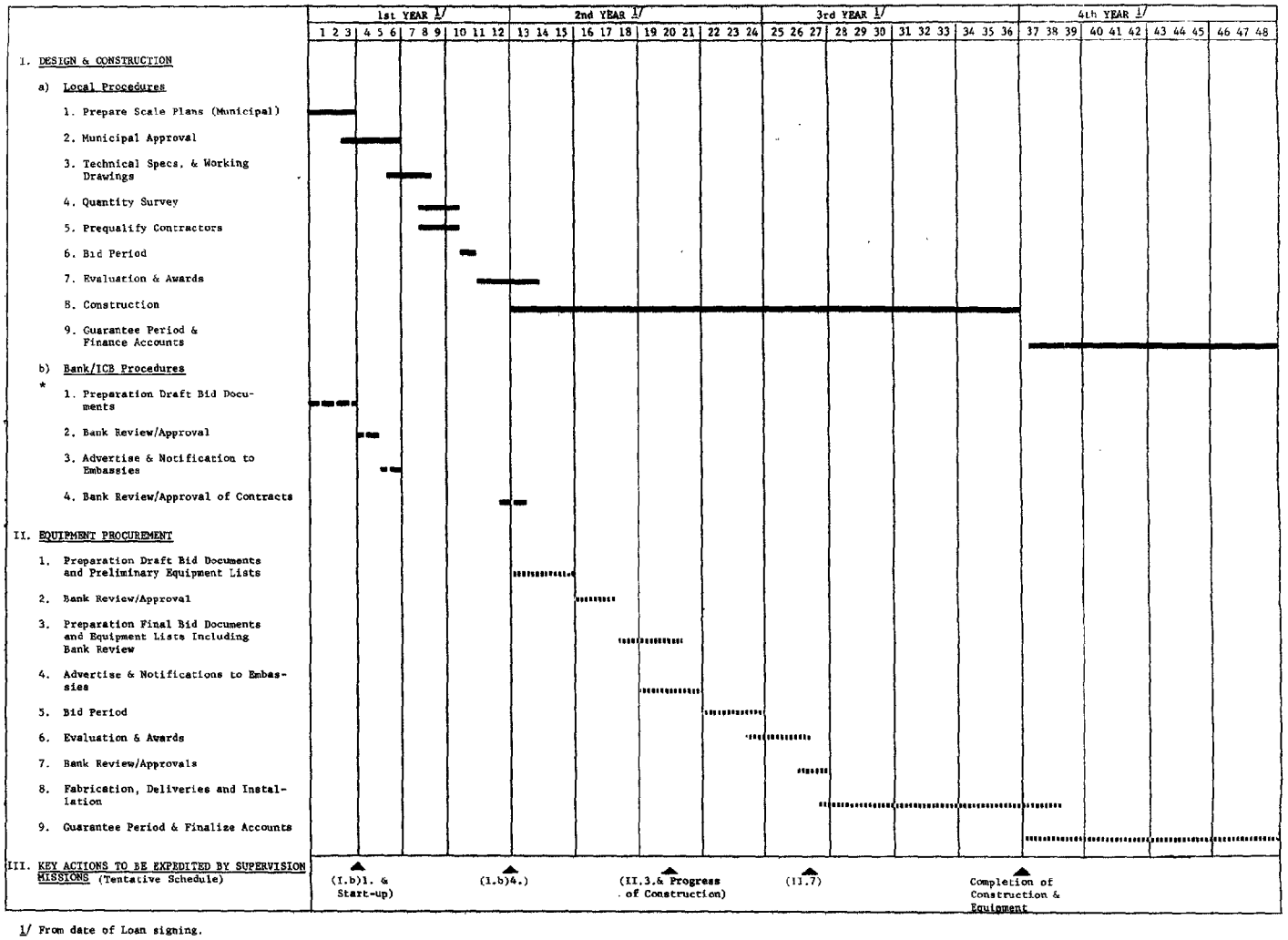
FY 1976	Semester Disbursement	Accumulated Disbursements	As % of loan	Undisbursed Balanced	As % of loan
1st Semester	-	-	-	-	-
2nd Semester	.100	.100	2.0%	4.900	98.0%
FY 1977					
1st Semester	.355	.455	9.1%	4.545	90.9%
2nd Semester	.535	.990	19.8%	4.010	80.2%
FY 1978					
1st Semester	1.500	2.490	49.8%	2.510	50.2%
2nd Semester	2.100	4.590	91.8%	.410	8.2%
FY 1979					
1st Semester	.310	4.900	98.0%	.100	2.0%
2nd Semester	.100	5.000	100.0%	-	-

Closing Date of June 30, 1979.

EMENA/Education and Manpower Development Division
January 1975

ISRAEL: VOCATIONAL/TECHNICAL TRAINING COMPONENT

Implementation Schedule



1/ From date of Loan signing.

* Includes:

1. Prequalification Criteria & Procedures for Contractors.
2. Notices & Advertisement
3. Sample Form of Contract
4. General Conditions of Bid

Source: EMENA/Education and Manpower Development Division
January 1975

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FEBRUARY 1975