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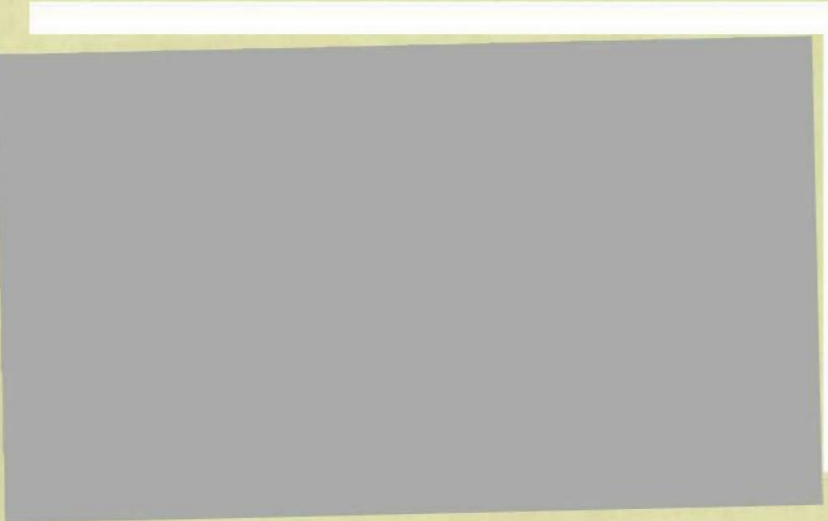
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AGRICULTURE

1. Agriculture is the largest sector in Bank operations constituting 30% of total new lending in fiscal years 1976-80. The importance of agricultural lending reflects the key role of agricultural development in most of the Bank's developing member countries. Agricultural development will continue to pose a major challenge for the foreseeable future. The main reasons are twofold. Firstly, the rural population of developing countries comprises over 65% of the total population, and most rural people depend on agriculture for income and livelihood; improved rural living standards are a major factor in raising overall living standards. Secondly, the food supply problems of low-income countries and many middle-income countries can only be solved by increased domestic production; less than 5% of the aggregate consumption of foodgrain among the low income developing countries is met from international trade and there is little prospect of increasing this proportion in the foreseeable future. Since the mid-1960s, and especially after the 1972/74 world food crisis, observers have predicted worsening food shortages. Thus far, the more pessimistic forecasts have not materialized, though there are some serious problems and scarcities, for example, in many countries of sub-saharan Africa. Given the severe shortage of foreign exchange in many countries, agriculture's continuing role as a foreign exchange earner is also a critical one.

2. For a combination of reasons, the agricultural sectors of most developing countries were neglected in the past and generally under-capitalized. Thus, significant potentials are available for new investment in agriculture. Governments (partly prompted by the Bank) have become more aware of the need to devote additional resources to agriculture and have increasingly sought Bank assistance for agricultural programs. The share of new lending for agriculture in fiscal years 1966-70 was only 17% versus 24% in 1971-75 and 30% in 1976-80. Coupled with the large expansion in overall lending volume through this period, the growth of lending for agriculture has been very rapid. Over 400 agricultural projects were financed during 1976-80 which is a larger number than during the previous 28-year period of Bank lending for agriculture. The high priority given to agriculture in Bank activities is thus relatively recent. These totals do not include substantial lending activities that indirectly benefit the agricultural sector. If investments for rural services, related rural infrastructure and fertilizer production were included, this would bring the proportion of Bank resources devoted to agricultural development up to about 45% of total commitments in recent years. According to available information, current Bank lending represents roughly 50% of all external aid for agriculture in the developing countries.

3. The scope of the Bank's agricultural portfolio has widened as the scale of operations increased. The early focus on commercial livestock production and export crops gave way in the early 1970s to an emphasis on food. In the last five years, roughly three-quarters of total expected output from Bank projects was in the form of food for domestic consumption. Irrigation is the critical requirement for higher yields in many countries, especially those in Asia, and as a result this has become the largest subsector. About 34% of 1976-80 Bank commitments in the agricultural sector were for irrigation and drainage, a proportion that rises to over 40% when irrigation-related investments financed under credit projects are included. Activities undertaken in irrigation projects have widened considerably and now include on-farm improvements, system rehabilitation, conservation of soil resources, protection of groundwater reserves and measures to raise the productivity of water usage. In those parts of the world where irrigation is not an option, Bank-financed projects have aimed at raising the productivity of rainfed farming frequently through area development projects, comprising about 20% of the 1976-80 portfolio. Other major activities in Bank projects include:

- i. improved extension services in both irrigated and rainfed areas;
- ii. augmenting agricultural research capacity to provide appropriate food production technologies (the needs of rainfed agriculture being a priority);
- iii. constructing required marketing infrastructure, especially rural roads (much rural road investment is also financed in transport sector projects);
- iv. support for production of inputs like improved varieties of seed, pesticides and fertilizer (the latter as part of the industrial project portfolio);
- v. financing smallholder output of export crops and livestock products;
- vi. preservation and development of forest resources (as an energy source and to supply industrial raw materials); and
- vii. promotion and development of fisheries.

4. The most important shift in sector policy has been the targeting of investments to benefit small farmers. The outline of this approach was presented by President McNamara in his 1973 Annual Meeting speech in Nairobi. In recent years roughly half of agriculture lending has been for small farmer development programs and some two-thirds of those expected to benefit from the projects are from low income groups. Raising the productivity of the 200 million farm families in the developing world has become the centerpiece of Bank operations. Average investment

per project beneficiary has decreased by 90% since the late 1960s, reflecting the shift into projects providing technologies appropriate to large numbers of low-income, small-scale farmers. The number of Bank-supported projects located in the least developed and often poorest rural regions of borrower countries has increased substantially, e.g. in areas such as the Sahel Zone in Africa and the northeast drylands of Brazil.

5. Some serious problems are associated with the scale of expansion, the comprehensive nature of the Bank's involvement in agriculture and the small farmer emphasis in lending strategy. Increased scale, widening scope and a new strategy focussed on small farm development all imply that a good deal of the effort over the past several years has been associated with pioneering projects. Many loans during this period represent the first agricultural project in a particular country (especially in Africa) or the first project of a particular type. Some of these projects have required considerable redesign during implementation and a few have failed or are failing. The poor performance of a number of area development projects in Africa, usually associated with attempts to develop rainfed farming systems for smallholders, is a special focus of concern. Problems with such projects illustrate general themes that constitute the foreseeable challenges in agricultural development in the 1980s.

6. The major problems can be summarized as follows:

- i. the economic environment of market prices and costs continues to disfavor agricultural producers and the policies that produce these results are proving difficult to change; producer incentives are frequently inadequate to encourage extra effort, use of modern inputs and techniques, or to reward risk taking on the part of the farmer-entrepreneur, with risk especially important in rainfed annual cropping systems;
- ii. technical problems are also important in a number of cases, reflecting the past inadequate attention to agricultural research in many countries, especially in Africa, where the colonial inheritance in research for foodcrops was particularly poor;
- iii. inefficient government marketing agencies and policies have become increasingly important--this is a subsector where Bank projects have had little positive effect thus far;
- iv. management capacity for additional project implementation work is inadequate in most low-income African countries and the training of agricultural staff for research, extension and management functions poses problems in many countries;

- v. as a result of increasing government financial problems (due partly to the inadequacy of cost recovery and low interest credit in agriculture and other sectors), the recurrent costs of farmer services and of maintaining infrastructure are rising to prohibitive levels; this too is a problem affecting many low income countries.

7. Frequently, a high risk project is one for which several of these adverse conditions are operative, reinforcing the likelihood of an unfavorable outcome. For the Bank, the main safeguard is the careful screening of new loan proposals such that most of the highly problematic cases are not financed or are financed as small projects with special attention to design and implementation. The impact of Bank projects have been reviewed by projects staff, OED and borrower governments. Thus far, the track record in terms of completed projects is a favorable one. Summarizing the most recent OED report (which dealt with experience of 49 completed agricultural projects),^{1/} the direct production effects of completed projects were substantial and generally in line with appraisal estimates. Economic returns averaged 19.5% and small farmer projects have proved economically viable. Moreover, appraisal estimates of beneficiaries were considerably exceeded: the projects helped more than 800,000 farm families comprising 4.5 million people. The four failed projects identified accounted for but 3% of total lending which comprised US\$916 million (with project costs of US\$2,345 million).

8. The implications of Bank interventions extend beyond the relatively tangible financial or production effects. Government reviews have highlighted the success of Bank-induced reorganizations of farmer services, especially extension and irrigation management institutions. Most development agencies and governments have adopted the Bank's small-farmer strategy. Perhaps most important ongoing projects have added to borrower country capacity for preparing and implementing agricultural projects. A sign of this has been the Bank's ability to devolve project-cycle activities to implementing agencies in the field. In fact, almost one-third of current agriculture lending (in terms of value) is in the form of sector loans where responsibility for specific subproject appraisal is in the hands of the local executing agencies.

^{1/} Report No. 3117. Sixth Annual Review of Project Performance Audit Results, September 3, 1980.

AGRICULTURE AND RURAL DEVELOPMENT LENDING

<u>Lending Program</u>	<u>Number of Projects</u>	<u>\$ Value (in million)</u>
FY82 (planned)	90	3947.3
FY81 (estimated)	83	3700.9
FY80	85	3458.0
FY76-80 (annual average)	81.0	2637.2
FY71-75 (annual average)	47.8	921.0
<u>Projects under Supervision</u> *		
As of 7/1/80	573	

* Number of loans/credits approved between FY73 and FY80, inclusive.

Sources

Table IVb: FY82 Lending Operations Monthly Report as of 12/31/80
Table IVb: FY81 Lending Operations Monthly Report as of 12/31/80
Table IV : IBRD & IDA: Country Lending Programs Through FY85
as of 10/31/80.

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

1. The Bank's involvement in the Consultative Group on International Agricultural Research (CGIAR) is quite distinct from the mainstream of its activities, and therefore calls for a brief description.
2. The CGIAR is an informal association of countries, multilateral organizations and private foundations. It was formed in 1971 to provide broader support for successful international agricultural research centers (IARCs), which had been established and up to then funded by the Ford and Rockefeller Foundations.
3. Many developing countries no longer produce enough food to feed themselves and this shortfall is becoming much more serious as increases in population outstrip increases in food production. The basic objective of the CGIAR is to support research which will provide a technology whereby land used to grow food can be more productive and food supplies for developing countries can be improved. This is done mainly through breeding new varieties of important food crops which will give higher yields, have better resistance to pests and diseases, and grow under poor ecological conditions. Important research is also carried on into farming systems, animal production and animal diseases. Other activities include collection and conservation of genetic material, and training of scientists from developing countries. Over 50 million hectares have already been planted to high-yielding varieties of wheat and rice developed by two of the IARCs. The additional food produced is enough to feed 300 million people.
4. The model adopted for this research is the international center. The 13 international centers now being supported by the Group are mostly located in developing countries, but each has international status, an autonomous international Board of Trustees, and a mandate that transcends national borders. They are provided with resources adequate to enable them to aim at the highest standards of scientific excellence, to attract outstanding scientists to work in multidisciplinary teams, benefit from economies of scale, and set up extensive international networks for the exchange and testing of plant breeding materials.
5. The Bank took the lead in setting up the CGIAR, on the personal initiative of Mr. McNamara. The Bank, the UNDP and the FAO jointly act as the Group's Cosponsors. The Bank provides 10% each year of the funds needed by the IARCs. It is the largest donor after the United States which contributes 25%. For 1981 the Bank's Board of Governors has authorized contributing up to \$14.6 million. These funds are provided from that part of the Bank's net income transferred to IDA. The Bank provides the Chairman of the CGIAR, currently Mr. Warren C. Baum, CPSVP. The Bank also provides the CGIAR's small Secretariat, staffed by regular Bank staff members, and paid for out

of the regular administrative budget. The three Cosponsors, including the Bank, contribute one-third each of the budget of the Group's thirteen-man Technical Advisory Committee (TAC), a part-time scientific body served by a full-time Secretariat based at, and staffed by, FAO in Rome.

6. Each donor member decides for itself the size of its annual contribution to the system and the allocation to IARCs of the funds it provides. A donor's contribution to a center is paid direct. There is no burden-sharing formula and no central pool of money. The Bank acts as donor of last resort and its contribution is used to fill gaps between centers' authorized expenditure and funding provided by the other donors bilaterally. Decisions by the Group are made by consensus. There is no formal voting procedure.

7. The Consultative Group's informal structure and procedures have proved successful and popular with donors. The system has grown rapidly, from \$20 million for six research activities in 1972, to nearly \$140 million for 13 research institutions in 1981 (both in current dollars). The CGIAR now supports research aimed at improving productivity in virtually all crops and animals that are important to the developing world. Its current membership of 46 includes all major aid-giving countries and multilateral development organizations, as well as ten countries representing the developing world.

8. The system continues to grow, but not as fast as formerly. It has become more complex and, at the same time, more constrained financially as donors have found it more difficult to put up the additional resources needed. Increasing complexity and constraints are beginning to suggest to the members of the Group that its services (the Secretariat and TAC) need strengthening to provide more centralized coordination and control. However, the Group seems certain to maintain the principles that each IARC shall be an autonomous organization governed by an independent Board of Trustees, and that relationships between each donor and each IARC remain bilateral. Most donors enthusiastically support the CGIAR system, which has won international recognition including the award of the King Baudouin International Development Prize last year.

Policy Points

9. Appropriate agricultural research, supported by adequate means of transmitting new technology to farmers, is a fundamental precondition to improved food production, and hence, economic development. Bank and IDA loans and credits for national agricultural research are among the fastest growing areas of operation. International research has an essential complementary role to play. The value and relevance of the work of the IARCs to the basic objectives of the Bank and to the national goals of member countries are not questioned and it is generally accepted that good agricultural research has a high pay-off. Allocation of increased resources to international agricultural research is well justified. The Bank expects to play a large, though low-key, part in shaping the Group's future development. A comprehensive Review of the Group's objectives, policies and procedures is currently under way and will establish its strategy for the remainder of the 1980s.

10. It has been the Bank's policy to support reasonable growth in the CGIAR system. Although a visible and effective part of the international development community, the CGIAR system commands resources which are still very small compared to official development aid for agriculture, or even compared to total agricultural research efforts in developing countries. It is open to the Bank to use its influence, and funds, to press for further growth and an expanded range of activities on the grounds of the importance of international agricultural research, the belief in the very high economic returns generated thereby, and the comparative advantage of the CGIAR-IARC arrangements. Given the severe impending food shortage, most donors would agree with this attitude, but in times of economic stringency they may feel the need to be conservative.

11. Even if the CGIAR system is set on a path of moderate growth in the medium term, it will be necessary to broaden and increase financial support, and to ensure its long-term security. The cornerstone of this support has been the U.S. commitment to provide 25% of the resources contributed by the Group annually. It is essential to the well-being of the Group that this commitment continue. Efforts are at the same time being made to find new donors, and to increase participation of organizations such as the International Fund for Agricultural Development (IFAD), the OPEC Fund and the Commission of the European Economic Communities.

12. As the CGIAR system grows larger and more complex, the Group, and the Bank, face a range of issues on how the Group's program is to be managed efficiently. In general these derive from the situation in which a very loose informal organization, operating by consensus without any legal framework of its own, has to reconcile the need for accountability and maximum effectiveness in the use of scarce public funds with preserving the autonomy and freedom without which scientific creativity rapidly suffocates. The Bank is very much a party at interest since, in addition to substantial funds, it provides leadership and such central "management" as the informal governance of the system calls for.

Industry and
Industrial Fin.

INDUSTRY AND INDUSTRIAL FINANCE

Major Issues

1. Rapid industrial growth can make an important contribution to economic and social development by: (a) diversifying LDC economies and reducing their dependence on agriculture and exports of primary products; (b) generating additional domestic value-added by further processing of local raw materials; and (c) providing more productive employment and higher incomes for the rapidly growing labor force. It enables developing countries to use their comparative advantage (relatively-low labor costs) to make labor-intensive products which can compete effectively in world markets. Industrial growth also contributes to developing the technical skills of the population, producing the consumption goods and tools required to meet the basic needs of the poor and to raise their productivity and living standards, and stimulating agricultural development by providing improved inputs and creating additional markets for agricultural production.
2. Industry in the developing countries, in the aggregate, has performed well in several of these respects over the past twenty years. Industrial output has nearly quadrupled and its share of GDP has reached 36%, more than twice the share of agriculture. The rate of labor absorption in industry has been the highest of the three major sectors of the economy, averaging more than 4% per annum. Manufactured exports of developing countries accounted for 31% of their total exports by 1977. But the global figures hide wide variations in the performance of individual countries and groups. The poorest countries experienced a deceleration in the rate of growth of manufacturing output in the 1970s, which averaged 4.2% p.a., little above their growth of population, and several of them showed an absolute decline in manufacturing production in real terms from 1970 to 1978. Trends in African countries (south of the Sahara) were particularly disappointing. The global averages are inflated by the exceptional performances of a handful of countries like Korea with growth rates of industrial output exceeding 18% per annum since 1960. Their success indicates what can be achieved with appropriate policies, despite a relatively poor natural resource endowment. But the number of lagging countries shows that considerable further effort and international assistance is required before the benefits of a dynamic industrial sector can be widely shared in the third world.
3. The major constraints on industrial growth have to do with capital, markets, and technology, as well as entrepreneurship and industrial skills. In many member countries, there are also obstacles to industrial development posed by a policy environment which is inimical to investment, or which favors large-scale capital-intensive over small and labor-intensive industry, or which encourages expensive import substitution instead of competitive production for export.

Bank Approach to the Industrial Sector

4. To help member countries overcome these obstacles the Bank, through its lending operations, contributes to capital formation, technical and managerial assistance, and technology transfer. Through its analytical work leading to selection of specific programs and projects, it assists member countries in assessing the implications of alternative policy and strategy options in the industrial sector.

5. Bank lending for industrial development is done in two ways. Large industrial projects, in which the Bank lends directly to the enterprises concerned, are undertaken by the Industrial Projects Department, a central operating department in CPS. Lending to medium and small industries is undertaken through local financial intermediaries; these operations are undertaken by the Industrial Development and Finance Divisions in the Regional Offices, with the Industrial Development and Finance Department in CPS providing functional support and advice. A short description of these two modes of Bank lending--each of which is expected to account for well over \$1 billion of loans annually in the coming years--is provided below. (Structural adjustment loans treat the industry, energy and/or agriculture sectors; where these operations, which are the responsibility of the Regional Programs Departments, involve industry, the technical support is provided by the Regional IDF Divisions and IDFD.)

6. Lending operations are intended to emerge from analytical work on industrial strategies and reviews of the sector in various countries, plus special studies of policy issues and structural problems. This work is both diagnostic and prescriptive, and it provides the basis for a dialogue with Governments on policies and project choices, and the formulation of a Bank industrial lending strategy for the country concerned, including activities in support of lending such as technical assistance and industrial training.

Characteristics of Lending Operations

(a) Industrial Development and Finance IDF Operations

7. To provide financial assistance to the large number of diverse enterprises in member countries, the Bank uses intermediary institutions such as industrial development finance companies (DFCs) and, increasingly, commercial banks to channel funds to ultimate users. Lines of credit are arranged, and subject to broad guidelines concerning eligibility of sub-projects, the intermediaries lend for the creation, expansion, and modernization of productive enterprise--primarily in manufacturing, but also in construction, transport, tourism and some agricultural processing industries. In FY80, such lending amounted to \$1,112 million (Bank/IDA approvals). Since 1950, when it made its first loan to the Development Bank of Ethiopia, the Bank has assisted in establishing, reorganizing or strengthening approximately 110 DFCs; we are still actively involved with approximately 75 of these.

8. Initially the Bank concentrated on "institution building" to upgrade the capability of the intermediary institutions. Most member countries now have reasonably competent institutions of this type, and the Bank has shifted its focus toward industrial and financial policy improvement. Generalized advice regarding liberalization, realistic exchange rates, etc., is not enough; it is necessary, in project operations and especially in structural adjustment loans, to translate policy concerns into specific operational terms. This work is staff-intensive; manpower resources devoted to industrial sector work have more than doubled in the last four years, enabling analysis in greater depth and in more countries of the factors, including the policy environment, which impede or encourage industrial development.

9. As noted, actual operations are in the hands of the Regional IDF Projects Divisions. As a Sector Department in CPS, the IDF Department's role is to advise and assist the Divisions in both project and sector work by providing policy guidance; assisting with quality control; providing direct support to field missions which involve innovative approaches to problems faced by more than one Region; and organizing staff development activities designed to bring about cross-Regional interchange of experience. Probably the most important work of the Department in the long run is its policy-related research and studies aimed at evaluating results of Bank industrial lending and sector work, and pointing to new directions for lending and means of improving effectiveness.

10. Five years ago the Bank decided to direct more assistance to small scale enterprise (SSE) in the developing countries, primarily for the reason that small businesses generate more direct employment per unit of invested capital than large businesses. The IDF Department spear-headed a drive within the Bank to increase assistance to small-scale industry from about 7-8% of our lending through financial intermediaries in FY1976 to about 23% in FY1980. Organizational problems in the developing countries, however, as well as the availability of concessionary finance from other donors and the heavy Bank staff requirements needed to prepare and manage SSE projects, make it unlikely that we will reach our target of 30% in FY1981.

11. The Bank has tried also to encourage greater employment generation from other operations it finances through DFCs. The expected average capital investment per worker in (non-SSE) DFC projects approved in FY1980 will be on the order of US\$30,000 expressed in 1980 prices--only a fraction of that observed in large-scale capital-intensive projects, but high in relation to investment resources available in typical developing countries. Our policy discussions with member countries emphasize the need to price capital and labor in relation to their true scarcities, and to seek to maximize employment within the constraints set by efficiency considerations, but it remains to be seen whether and how much this will influence job costs in the future. Details of the Bank's IDF lending are summarized in the attached table.

(b) Industrial Projects Department (IPD) Operations

12. During the FY1970-80 period the number of large-scale projects assisted by IPD, as well as their range and technological sophistication, increased considerably; they included 30 fertilizer loans (\$1,755 mn.); 10 steel loans (\$753 mn.); 13 mining loans (\$554 mn.); 6 textile loans (\$271 mn.); and 37 loans (\$1,257 mn.) covering a variety of activities including pulp and paper, chemicals, petrochemicals, machinery, cement, electronics, pipes, tires, engineering studies, and most recently energy-related investments. A total of 96 loans worth \$4,590 mn. received Board approval during the period. Another 12 loans valued at \$846 mn. are expected in FY1981. In addition to the creation of new industrial capacity, attention has been given in recent years to the rehabilitation of existing capacity.

13. Mining, the most difficult and complex activity handled by IPD, has shown uneven growth but is now attracting attention--especially in the area of coal and solid-fuel minerals. The heavy involvement in energy

creation/conservation (coal, lignite, tar sands, oil shale, oil refining, synfuels, alcohol, retrofitting) is described in the Energy Brief.

14. By their nature, large industrial projects are capital-intensive and technologically demanding. Bank participation may represent only a small portion of total project cost, but is often essential in completing the financing plan. Equally important, Bank appraisals help borrowers to structure their projects, to optimize technical selections, and to ensure efficient implementation. Defining appropriate technology, and finding the right balance between capital and labor, provide constant challenge. Where rehabilitation of existing industries is involved, the pursuit of efficiency can result in a reduction of employment. Substantial requirements for expatriate technical expertise to facilitate the transfer of desirable technology is another area of importance and difficulty.

15. These large-scale projects are revenue-producing and often export-oriented. Marketing requires careful analysis and judgment. It is Bank policy not to finance industrial ventures that require subsidies or excessive protection, and the cost of funds is set at the Bank lending rate plus an additional amount to bring the effective rate up to prevailing commercial terms. In all cases, competitive advantages are sought and maximized. Projects must satisfy Bank tests of economic merit, using international prices and opportunity costs.

16. Industrial projects must also meet stringent tests of financial soundness. Most IPD projects are state-owned, however, and financial profitability may be less than required to attract private investment funds.

17. Bank/IDA lending for industrial projects typically covers between 25 and 50 percent of total project cost, and is directed toward foreign exchange expenditures. When co-financing is possible, however, Bank share may be as little as 5 percent of project cost. Data on the number and average size of IPD's direct industrial projects are summarized in the attached table.

Attachment:

Industrial Development & Finance
and Industrial Projects Departments

April 13, 1981

LENDING FOR INDUSTRY AND INDUSTRIAL FINANCE

<u>Lending Program</u>	<u>Number of Projects</u>		<u>\$ Value (in million)</u>	
	<u>Industry</u>	<u>Industrial Finance</u>	<u>Industry</u>	<u>Industrial Finance</u>
FY82 (planned)	21	19	1732.3	761.0
FY81 (estimated)	10	29	936.4	1336.4
FY80	10	27	514.0	1058.0
FY76-80 (annual average)	10.8	25.2	587.4	833.4
FY71-75 (annual average)	8.4	13.6	334.8	334.2

Projects under Supervision *
As of 7/1/80 87 169

Note: Due to definitional problems it has been necessary to amend the source tables as follows: (a) Two industrial finance projects shown as FY82 were advanced to and approved in FY81 and are now shown in that year; (b) One project noted under industry is now managed by an IDF division and thus included under industrial finance in FY82.

The FY80 industrial finance data exclude two technical assistance projects totalling \$53.0 million which were managed by industrial finance divisions and served industrial finance objectives.

The industrial historical averages exclude five Industrial Estate projects amounting to \$98 million.

The current lending program for industry estimates 12 FY81 projects (\$846.3 million) and 19 for FY82 projects (\$1,872.0 million)

* Number of loans/credits approved between FY73 and FY80, inclusive.

Sources

Table IVb: FY82 Lending Operations Monthly Report as of 12/31/80

Table IVb: FY81 Lending Operations Monthly Report as of 12/31/80

Table IV : IBRD & IDA: Country Lending Programs Through FY85
as of 10/31/80.

Energy

E N E R G Y

Energy in the LDCs

1. Developing countries presently consume 12 percent of the world's commercial energy but their requirements are increasing more rapidly than those of the industrialized countries because of their higher economic growth rates and due to the continuing shift away from traditional to commercial energy sources. Even under modest growth assumptions, during this decade LDC commercial energy consumption will nearly double to about 31 million bdoe and their consumption of oil will increase by two-thirds to 15 million b/d.
2. This poses particularly serious problems for the 90 or so oil importing developing countries (OIDCs) who are already experiencing acute difficulties in maintaining their economic progress whilst financing the ever increasing costs of fuel imports. If energy production in these countries continues to grow no faster than in recent years, their oil import bill will more than double (in constant 1980 dollars) to \$110 billion by the end of the decade. International borrowings to finance this deficit will further raise the already high level of LDC indebtedness and the proportion of export earnings spent on servicing this debt. Many LDCs must also begin to tackle a second energy problem of equally serious dimensions: the rapidly diminishing supplies of fuelwood which currently provide a quarter of their total energy. Fuelwood shortages are common in many of the poorest OIDs and for them rapid deforestation is as severe a development constraint as oil dependence.
3. Maintaining developing country growth and ensuring that LDC energy demands are met without causing additional strain in world oil markets depends primarily on a combination of increased indigenous energy production and more effective energy demand management. On the supply side, the increase in the real price of oil has made attractive the exploitation of indigenous reserves of oil, gas, coal and hydroelectric power which were previously regarded as uneconomical, or of marginal value. On the demand front, rationalized energy pricing policies supported by effective fiscal and regulatory measures could result in substantial energy conservation and increase the efficiency of energy use. The Bank has estimated that through a concerted program of maximizing their energy production and improving the efficiency of energy use, oil importing developing countries could reduce their 1990 oil import bill by a quarter, or approximately \$25-30 billion (1980 dollars).
4. The investment costs of this expanded energy program for OIDs are on the order of \$500 billion (1980 \$) over the next decade. However, the ability of these countries to mobilize the external financial resources for this program is severely constrained by lack of creditworthiness for commercial finance (in part because of oil import bills), uncertainty about

their domestic energy resource base, and inadequate domestic policies and institutions. Commercial banks and oil companies, aware of these constraints, have further inhibitions of their own: the banks show little initiative in mobilizing the large amounts of finance for the infrastructure required to permit exploitation of indigenous gas, hydro and coal; the oil companies want crude oil for world markets and they seek protection against political risk, including nationalization. The Bank is thus well placed, as the largest source of public support for development of energy resources in LDCs, to act as honest broker and catalyst for mobilization of financial resources in addition to its own lending and to provide, through its presence, added sanctity to contracts between oil companies and LDCs.

Bank Involvement in Energy

5. Until 1977, World Bank involvement in the energy sector was largely confined to electric power, where it has long been the major public source of technical and financial assistance for LDCs. In 1977 the Bank's Board of Directors approved a broadening of sector lending to finance primary energy development, including a reversal of the previous policy not to lend for petroleum. In January of 1979 the Board approved an expansion of the new hydrocarbon lending program into "predevelopment" activities including exploratory drilling. The staffing dimension of this rapid extension in the Bank's energy mandate has been a ten-fold increase, from seven energy-related policy, advisory and petroleum staff in 1977, to the current Energy Department establishment of nearly 70 professionals.

6. Following the doubling of oil prices in 1979, the Bank prepared a comprehensive review of the LDC energy situation which was discussed by the Board last August. The Board then approved a further broadening of the Bank's energy strategy (i) to emphasize energy demand management in all sectors; (ii) to give increased attention to rural energy; (iii) to support renewable energy development, and (iv) to expand the role of gas in meeting LDC energy needs. The lending implications of this comprehensive program, however, exceed the Bank's resources within the constraints of its overall sectoral balance objectives; hence, the proposal for seeking additional resources for an expanded World Bank energy lending program which is under consideration.

7. Energy activities in the Bank currently span several departments. The Energy Department is responsible for sector policy and advice (including advisory work in power, conservation, new and renewable energy, energy policy and economics, and oil policy) as well as country energy assessments. It also has operational (lending) responsibilities for petroleum (oil and gas) projects. Coal, refineries, alcohol projects, synthetic fuels and industrial retrofitting are also centrally managed by the Industrial Projects Department. Power lending is handled by the energy divisions of the regional projects departments. Fuelwood projects are undertaken through the Bank's regional agriculture divisions with guidance from the Forestry Adviser in the CPS Agriculture and Rural Development Department.

Country Lending Programs

8. A balanced supply/demand approach is being programmed in energy lending over the next five years, addressing the priority needs of each member LDC through various subsector projects invariably containing a substantial institution building component. To better evaluate these needs, to provide a framework for our own lending in the different energy subsectors and to assist member Governments in developing an integrated energy policy and an effective national energy planning capability, the Bank has recently embarked on an expanded program of energy sector assessments. These assessments, which are financed partly by the UNDP, provide a diagnosis of the main issues and options facing the country in the development of its energy sector and identify programs of external technical and financial assistance required in support of the country's effort to deal with its energy problems while maintaining momentum in its overall development. The Bank often follows this diagnostic effort with lending for technical assistance in planning and institution building at the national level.

9. On a subsector level, the Bank's lending for oil and gas has grown rapidly from one project in FY77 -- \$150 million for the development of the Bombay High discovery in India -- to 13 projects in FY80 and 16 planned for \$890 million this year. Reflecting the Bank's policy initiative of 1979, nearly 40% of the projects approved since the beginning of FY80 are for exploration promotion activities, sometimes involving drilling. Very strong interest is shown in this by member LDCs and by many oil companies who value the Bank's presence as an objective party and appreciate the need for preparatory work. Eighteen private oil companies are currently working with the Bank on projects which have been approved or are under preparation in 17 member countries. The Bank's efforts in the subsector will result in a dramatic increase in exploration of new areas and should result in substantial increased production, mainly substituting for oil imports. Forty percent of the development projects approved to date have been for natural gas.

10. LDC oil refineries will also be targeted for Bank lending. In many cases, it is economically attractive to improve the low energy efficiency of existing refineries and to change their configuration to better meet the changing patterns of product demand that are being brought about by petroleum substitution programs.

11. Electric power, a traditional sector for the Bank and its second largest, after agriculture, in lending volume, will continue to dominate Bank energy lending as it does LDC public investment programs. Hydroelectricity will receive strong emphasis as will geothermal where the resources look promising, and the Bank will continue to stress cofinancing and internal resource mobilization through sound financial management and rational tariff policies. Load management and loss reduction will become standard features of Bank power projects.

12. Accelerated Bank lending for coal must be preceded by early emphasis on coal exploration and pre-investment work, including substantial amounts of technical assistance to familiarize LDC governments with the technical, economic and managerial aspects of coal mining, handling, and use. Priority is, therefore, given to exploration/pre-investment work, rehabilitation and expansion of existing mines, development of small, medium or large scale production of coal for domestic consumption and large scale coal production for export. In all cases the Bank supports the development of associated transport infrastructure.

13. Bank lending for renewable energy (in addition to hydro power) is focused on assisting developing countries to meet their critical fuelwood needs and to develop their potential for producing alcohol from biomass to substitute for gasoline and, possibly, to be used as chemical feedstocks. Fuelwood lending has risen substantially in recent years, but it is estimated that a five-fold increase in the current rate of planting would be needed to ensure a reasonable balance between fuelwood demand and supply in LDCs by 2000. The Bank's lending program aims to at least double the current rate of reforestation by 1985, and to create the technical and institutional infrastructure necessary for larger planting programs in the future. A strong emphasis is also given to introducing more efficient woodstoves and charcoal kilns which can substantially reduce fuelwood requirements; this would include technical and sociological investigations aimed at accelerating the acceptance of such stoves by the target population. Lending for alcohol production will be encouraged where it is economically promising; i.e., in countries with the potential for producing low cost biomass (e.g., Brazil) or those with "surplus" biomass (usually molasses) that can be economically converted to alcohol. Such projects presage a more aggressive approach to other alternative and synthetic fuels later as proven technology becomes available and appropriate, and economic implications are better understood. The Bank may, on occasion, finance pilot projects for demonstration of particularly promising new technologies, such as oil from shale and coal gasification projects in countries with abundant shale or low cost coal and a deficit in traditional hydrocarbons.

14. Energy efficiency will receive increased attention in all aspects of Bank lending, primarily through the development of appropriate energy pricing and demand management policies. Since most commercial energy in LDCs is consumed in the transport, power and industrial sectors, those areas of Bank lending will play a major role in optimizing LDC energy consumption. Direct lending for energy conserving projects, such as industrial retrofitting, will initially emphasize improved maintenance and management of plant operations and the financing of high return investments in energy-intensive industries (refineries, steel, cement, chemicals) to reduce their energy consumption and/or switch to cheaper fuels.

Trends Through the 80s

15. The current FY81-85 lending program in Table 2 reflects the discussion above. The "desirable" program, discussed by the Board last August, could not be financed by the Bank without upsetting the overall sectoral balance of its lending; it is the subject of current discussions for an energy affiliate. Both programs reflect heavy emphasis on oil and gas, coal, fuelwood, and electric power -- the best answers to LDC fuel problems for the rest of the decade. Both programs also reflect the important catalytic role of the Bank in mobilizing other sources of funding through its own lending. As the attached Table 2 shows, the proportion of total project costs to be met by Bank lending is about 25% for both the current and desirable programs. On the basis of recent trends, an equally large share of the total can be expected to be generated through cofinancing with other official and commercial sources. 1/ The LDCs themselves will, of course, have to display extraordinary efforts to mobilize from their own resources the balance of financial resources required. Nuclear power is not mentioned, but would be considered by the Bank in the event that economic desirability, the capability to manage the technology, and the non-availability of other sources of finance all come to pass.

1/ Over the period FY77-81, Bank Group lending of \$9.6 billion for projects in the energy sector has been associated with \$9.8 billion of external cofinancing (Table 3).

Energy Department
4/14/81

Table 1

ENERGY LENDING PROGRAM FY71-82*

	FY71-75 (annual Avg.)		FY76-80 (annual Avg.)		FY80 (actual)		FY81 (est.)		FY82 (planned)	
	No. Proj.	Amt.	No. Proj.	Amt.	No. Proj.	Amt.	No. Proj.	Amt.	No. Proj.	Amount
Oil and Gas	0.8	34.2	3.8	139.2	13	385.0	14 ^{c/}	786.6	19 ^{b/}	699.0
Electric Power ^{a/}	13.6	524.2	19.8	1,358.8	25	2,392.0	17	1,279.0	23	1,560.0
Coal	-	-	0.4	16.4	1	72.0	1	10.0	3 ^{d/}	435.0 ^{d/}
Fuelwood ^{e/}	-	-	n.a.	n.a.	4	114.1	2	46.0	4	214.5
Alcohol	-	-	-	-	-	-	1	250.0	1	5.0
Ind. Retrofitting	-	-	-	-	1	29.0	1	100.0	2	127.0
Refineries	-	-	-	-	-	-	1	150.0	1	80.0
TOTAL	<u>14.4</u>	<u>558.4</u>	<u>23.0</u>	<u>1,498.0</u>	<u>44</u>	<u>2,992.1</u>	<u>37^{f/}</u>	<u>2,621.6</u>	<u>53</u>	<u>3,120.5</u>

a/ Because power projects are often brought into the lending program toward the end of the fiscal year as replacement projects, the actual amounts are likely to be 30-40% above programmed lending.

b/ EGY has planned 24 projects (including 8 "supplementary" projects) totaling \$380.5 million.

c/ EGY estimates 16 projects totaling \$889.2 million.

d/ The US\$435 million applies to two of the three projects in the current lending program. An amount has not yet been identified for the third project. In addition IPD is preparing 3 other projects amounting to US\$100 million.

e/ Dollar amounts include fuelwood components; project numbers exclude them.

f/ Excludes two projects (Indonesia Coal and Morocco Shale) that are shown in Table 3 as FY81 projects but are now likely to become FY82 projects.

* Under supervision there are 22 oil and gas projects and 136 electric power projects and 2 coal projects.

n.a. not available.

Sources: (for Oil and Gas and Power)

Table IVb: FY82 Lending Operations Monthly Report as of 12/31/80

Table IVb: FY81 Lending Operations Monthly Report as of 12/31/80

Table IV : IBRD & IDA: Country Lending Programs Through FY85 as of 10/31/80

Estimates for other subsectors are as of April 1.

TABLE 2

CURRENT AND DESIRABLE WORLD BANK ENERGY LENDING PROGRAMS,
FY 1981-85

(Million current US dollars)

	Current		Desirable	
	Lending Program	Total Project Cost	Lending Program	Total Project Cost
<u>Coal and Lignite</u> /a	840	4,270	2,000	7,350
<u>Oil and Gas</u>				
Predevelopment	1,020	2,610	2,410	5,850
Oil Development /b	1,755	5,900	3,320	12,150
Gas Development /c	1,210	3,250	2,270	5,875
	<u>3,985</u>	<u>11,760</u>	<u>8,000</u>	<u>23,875</u>
<u>Refineries</u>	150	400	1,000	3,100
<u>Renewables</u>				
Fuelwood	425	850	1,100	2,200
Alcohol	200	2,100	650	4,550
	<u>625</u>	<u>2,950</u>	<u>1,750</u>	<u>6,750</u>
<u>Electric Power</u>	7,590	37,950	11,000	47,450
<u>Industrial Retro-</u> <u>fitting</u>	<u>0</u>	<u>0</u>	<u>1,250</u>	<u>3,825</u>
TOTAL	<u><u>13,190</u></u> /d	<u><u>57,330</u></u>	<u><u>25,000</u></u> /d	<u><u>92,350</u></u>
Bank Share of Total Project Cost (percent)		23		27

/a Includes coal gasification projects.

/b Includes heavy oil projects.

/c Includes methanol.

/d Does not provide for any lending to China.

Note: On completion, the projects included in the Current Lending Program are estimated to produce (or in the case of electric power and industrial retrofitting projects, to save) energy equivalent to 1.62 million barrels of oil per day (mbdoe) or 5.3 percent of the developing countries' projected energy consumption in 1990. The corresponding estimates for the Desirable Lending Program are 2.9 mbdoe and 9.5%, respectively. Refineries, which add substantially to the value of petroleum products but not to energy output or savings, are excluded from the calculation.

Source: "Energy in the Developing Countries".

WORLD BANK LENDING AND CO-FINANCING IN THE ENERGY SECTOR, FY77-81

	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>Estimate FY81</u>	<u>Total FY77-81</u>
Bank Group Lending for Energy (US\$M)						
Electric Power	951.5	1,146.2	1,354.9	2,392.3	1,270.0	7,114.9
Oil & Gas	150.0	-	112.4	385.0	784.2	1,431.6
Coal & Coal Gasification	-	-	-	72.0	180.0	252.0
Fuelwood & Biomass	-	6.2	31.8	82.3	322.3	442.6
Refineries & Retrofitting	-	-	58.0	29.0	223.0	310.0
TOTAL	1,101.5	1,152.4	1,557.1	2,960.6	2,779.5	9,551.1
Number of Operations	18	21	27	44	39	149
Memo: Loans and Credits for Energy with Co-financing (US\$M)						
	<u>770.5</u>	<u>507.2</u>	<u>979.6</u>	<u>2,270.0</u>		
Number of Operations	12	12	18	29		
Co-financing by Source (US\$M)						
	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>Estimate FY81</u>	<u>Total FY77-81</u>
Official	188.3	251.1	201.0	593.4	510.0	1,743.8
Bilateral	213.0	268.3	144.2	744.1	616.9	1,986.5
Multilateral	129.5	81.7	215.4	2,121.3	1,000.1	3,549.0
Export Credit	363.0	88.0	126.9	749.7	1,204.9	2,532.5
Private	-	-	-	-	-	-
TOTAL	893.8	689.1	687.5	4,208.5	3,331.9	9,810.8
Co-financing by Sub-Sector (US\$M)						
	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>Estimate FY81</u>	<u>Total FY77-81</u>
Electric Power	779.8	689.1	559.5	3,814.9	1,775.9	7,619.2
Oil & Gas	114.0	-	44.5	376.5	366.0	901.0
Coal & Coal Gasification	-	-	-	5.7	480.0	485.7
Fuelwood & Biomass	-	-	6.5	6.7	259.0	272.2
Refineries & Retrofitting	-	-	77.0	4.7	451.0	532.7
TOTAL	893.8	689.1	687.5	4,208.5	3,331.9	9,810.8
Co-financing by Source and Sub-Sector (US\$M)						
		<u>Official</u>	<u>Export Credit</u>	<u>Private</u>		<u>Total FY77-81</u>
Electric Power		3,165.9	2,710.5	1,742.8		7,619.2
Oil & Gas		106.5	481.5	313.0		901.0
Coal & Coal Gasification		380.0	100.0	5.7		485.7
Fuelwood & Biomass		22.2	-	250.0		272.2
Refineries & Retrofitting		55.7	256.0	221.0		532.7
TOTAL		3,730.3	3,548.0	2,532.5		9,810.8

Note: The figures in this table underestimate the extent of the association of private finance with Bank Group lending for oil and gas because they do not include private financing of developments made possible in conjunction with a Bank Group loan but not included in the narrow definition of the project. For example, not included in these amounts is about US\$300 million for the cost of production facilities financed by Union Oil in conjunction with the Thailand Natural Gas Pipeline II project. Nor do the figures include, for example, private sector investments undertaken as a result of Bank financed oil exploration projects. The figures also do not include co-financing data for 33 small pilot fuelwood components in area and rural development projects, for 4 projects containing small biomass components, or for small components for retrofitting in industrial and DFC projects.

TRANSPORTATION

Major Development Problems

1. The basic problem facing the transport sector in developing countries is the rapidity with which demand for its services grow. At low income levels, demand for mobility tends to increase faster than for any other major class of good or service. In countries ranging from India to Brazil, mechanized passenger movements increase, on a per capita basis, at least twice as fast as average incomes. Serious problems of inaccessibility still remain for extensive rural areas unconnected with the modern networks, and for large numbers of urban poor, in slums that are far from jobs and services and have grown up without streets. As regards freight, the importance of agricultural and manufacturing sectors in early and middle stages of development mean that total movements of goods also generally increase at a faster pace than GNP. Current emphases in many countries on increasing food and fuel production, on the one hand, and exports, on the other, particularly add to freight transport requirements.

2. Despite the large efforts that countries have made, transport bottlenecks continue to arise. Sometimes, in face of droughts and natural disasters, they assume dramatic proportions. More often they simply slow production and income growth. The costs are most visible when transport fails to fit with major development underway in other sectors. Bottlenecks of this sort have been almost a permanent feature of countries like Sudan and Nigeria. Among major economies in recent years, India and Mexico have suffered particularly severely.

3. A second main problem is maintenance of the transport facilities, and especially the infrastructures. With few exceptions, provision of transport infrastructure is recognized everywhere as essentially a public sector responsibility. Yet the public sector in developing countries has had the greatest difficulty in generating effective attitudes, and organizations for maintenance, and the necessary financing. The problem is most serious on roads because they have borne most of the traffic increase.

4. The third problem is adaptation of the transport sector to the 'energy crisis'. The increased price of fuel, uncertainty of fuel supply and constrained budgetary resources call for various adjustments in the different modes and, above all, for increased operational efficiency of the transport sector as a whole, to yield a package of services that meets the particular country's transport needs more reliably and at lower cost. There are signs of an emerging readiness by Governments to do more than in the past in politically difficult areas, such as rationalization of pricing and taxation structures, reform of regulatory systems and strengthening of institutions.

The Bank's Approach

5. The principal traditional role of the Bank lending has been to help finance the construction and upgrading of infrastructure, the purchase of maintenance equipment, and, in the case of railways, procurement of

operating equipment. Contractors and suppliers were normally foreign. Lending conditions and staff effort were mainly oriented to strengthening local capacities for planning and organizing infrastructure expansion, with special emphasis on use of economic criteria in investment selection and of sound procedures for contracting/procurement and construction supervision. Extensive attention and technical assistance also went to improvement of operating efficiency in some railway loans.

6. Particular attention has always been paid to financial performance. Targets for improvement have usually been agreed, in terms of operating ratios or similar indicators for railways, ports and airports, and with regard to budgetary provisions for maintenance in the case of highways.

7. Emphases added in the later 1970s have been: a deeper, more comprehensive approach to development of highway maintenance capacity, centrally and in the provinces; construction techniques, especially the scope for economizing on equipment, and the development of local civil work capacities, whether organized by small local contractors, communities, force account or larger public or private contractors; wider use of agreed plans of action to help improve operating efficiency of railways, ports and highway maintenance fleets; more thorough review of borrowers' staff training needs; and introduction of "highway sector lending", directly supporting a highway department's overall capital expenditures, with advantages in terms of flexibility and Bank focus on larger issues of sectoral policy.

8. Transport services, such as trucking, bussing and shipping, are normally provided mainly by many small firms in the private sector. Bank financial support has been limited and mainly through Development Finance Company lending or similar arrangements. Discussions on transport loans have however sometimes been successfully used to press for improvement of user taxation or gasoline pricing and reduction of economic regulation (and stronger enforcement of technical and safety standards); such loans have also often included funds for studies to assist Government formulation of policy on these matters.

Size and Characteristics of Lending Program

9. Over the five years FY76-80 direct lending for transport averaged nearly \$1.4 billion for some 34 projects (see attached table). Some 60% of the lending, a higher proportion than in the past, was for roads, with increased emphasis within that category on investments to build up maintenance capacity, and on construction of secondary and rural roads. Just over 20% was for railways, and just under 20% for ports and airports, including inland waterways and shipping. Co-financing has been very limited for road projects but extremely important for railways, where a significant role of the Bank is to help direct bilateral financing (usually for equipment) to sound uses.

10. Besides increasing diversity and complexity of transport loans, another notable tendency of the 1970s has been substantial lending for transport through non-transport projects. This averaged some \$350 million per year in FY76-80. Nearly half is for feeder roads, which are best handled

jointly with accompanying agricultural investments unless major effort is required to build up institutional capacity for planning, building and maintaining the roads themselves. The other half includes lending for urban transport in the Urban portfolio and a great variety of components in loans for Agriculture and Industry and some other sectors (e.g., railway spurs and realignments, light aircraft and airfields, specialized ships and road vehicles) and through DFCs on-lending (e.g., ships, trucks, busses, light aircraft, and construction equipment).

Major Issues and Trends

11. Current official Bankwide projections show direct lending for transportation declining in real terms (FY80 dollars) from \$1,600 million, where it has been for most of the 1970s taking one year with another, to about \$1,000 million in FY85. The long stagnation in real terms has not been a serious constraint to Bank activity because it coincided with insufficient provision for transport investment in some countries' own development plans and it has also been partly compensated by greater self-financing in some oil-exporting countries and by rising lending from some other sources and, to an extent, from the other Bank portfolios mentioned. But the sharp reduction in real terms now projected would severely limit the Bank's ability to respond to rapidly rising transport needs (that will be increased if anything by successful Structural Adjustment lending) and to opportunities for policy improvement that the 'energy crisis' makes more urgent.

12. While highway and port projects, despite serious execution problems in a few cases, have generally yielded very good economic returns, often better than projected, railway projects have been disappointing; the physical investments have not proven uneconomic, but improvements in the railway management and operations have fallen far short of expectations. The importance and difficulty of the economic, political and fiscal issues raised by railways are such that the Bank should not withdraw from the field. But procedures must be further tightened and deepened, which may lead initially to some reduction in the annual number of railway loans. A policy paper is under preparation.

13. The main current task within Bank transportation work is to increase the proportion of our staff who can go beyond pure infrastructure questions to advise countries confidently on transport policy issues of regulation, pricing, subsidies, energy-saving, etc. The Bank has a sound base in the form of specialists in each mode (most for roads, railways and ports/waterways, but also a few each for aviation, shipping and trucking), and it is obviously crucial, at a time when basic comparative advantages among modes are shifting, to retain that multi-modal capacity. But significant efforts in developing methodology for policy analysis, undertaking demonstration case-studies in this area, further analyzing how constituencies have been built for reform, and training Bank staff, are needed to broaden our capability to give advice on transport policy issues. Progress is being made, but slowly. Further new types of project, for instance in public truck terminals, coastal shipping or other modal interfaces, may result; the Bank already has the necessary technically qualified staff.

14. Finally, more effort will be required to spread good experience acquired with labor-intensive road-building into broader public works projects, preferably using small local contractors and/or community organizations. While a mid-1970s Bank review of countries' rural public works programs raised much doubt about their efficiency, research by the transport staff plus several years' experience now accumulated in countries such as Kenya, Benin, Lesotho, Honduras and Mexico show that tightly-run labor-based construction operations can be both economic and popular and can generate employment and useful outputs in large quantity. Knowledge of these successes is spreading, but countries need help in getting the programs going.

TRANSPORTATION LENDING

<u>Lending Program</u>	<u>Number of Projects</u>	<u>\$ Value (in million)</u>
FY82 (planned)	35	1624.6
FY81 (estimated)	33	1258.1
FY80	28	1445.0
FY76-80 (annual average)	33.8	1362.2
FY71-75 (annual average)	30.6	777.0
<u>Projects under Supervision</u> [*]		
As of 7/1/80	261	

* Number of loans/credits approved between FY73 and FY80, inclusive.

Sources

Table IVb: FY82 Lending Operations Monthly Report as of 12/31/80
Table IVb: FY81 Lending Operations Monthly Report as of 12/31/80
Table IV : IBRD & IDA: Country Lending Programs Through FY85
as of 10/31/80.

WATER and WASTES

Major Development Problems

1. Poor water supply and sanitation are major factors in the high mortality and morbidity characteristic of the developing world. In some areas appalling suffering results, while in almost all countries human well-being and productivity are severely affected. World attention has been drawn to these issues by the UN Drinking Water and Sanitation Decade (1981-90), in the preparations for which the Bank has actively participated. Many countries have now set specific targets for substantially raising the proportions of their people with access to safe drinking water and to adequate facilities for disposal of excreta. These proportions--at present less than half the urban populations and only 20% in rural areas, on average--will not reach 100% by 1990. But the serious attention being given to the issue, particularly in many large Asian countries where the problem is most heavily concentrated, means that substantial improvement is possible over the recent past when net increases in numbers effectively served barely kept pace with population growth.

2. Even with maximum use of simpler technology--e.g., standposts for water supply, and on-site waste disposal instead of sewerage--the capital requirements for substantially increasing the proportion of people served are very large. At the same time the growing needs of industry and commerce must be addressed. Also water, and air, resources have to be protected from excessive pollution. The size of the effort required is thus the first problem.

3. The second problem is the inadequate staffing, inexperience and ineffectiveness of the institutions responsible for water and sanitation in most member countries. It is not uncommon to find that 50% or more of the water presently produced is unaccounted for, and that treatment plants, especially wastewater treatment plants, are functioning improperly or not at all. Progress in rural areas needs strong support from technical hierarchies, which exist only in skeleton in many countries. On the one hand, then, sector institutions must be strengthened by training, practical experience, better management, more financial discipline, etc.; on the other hand, professional and political resistance to the introduction of more affordable technologies has to be overcome.

4. A third major problem is to overcome poor personal health and hygiene habits which have often undermined the potential contribution of water/sanitation investments to control of disease. Especially for rural and slum populations obtaining good facilities for the first time, investment needs therefore to be combined with other measures--usually by other Government and voluntary agencies--to improve household practices.

The Bank's Approach

5. Until the mid-1970s Bank lending went mainly to water supply for large cities, where the potential effects of outbreaks of disease were greatest. It sought to develop technically competent, financially viable

public utilities, by urging or requiring institutional autonomy, financial viability, minimization of costs and realistic assessment of demand. Loans often included provisions for management consultancy and for senior staff training.

6. Over time the Bank also moved to promote the introduction of increasing block tariffs which satisfy financial, economic and equity objectives. These tariffs provide essential quantities to low-income households at affordable prices while charging households using water for non-essential purposes, and commercial, industrial and institutional consumers rates that approximate the marginal cost of providing the service. Such rate structures generally produce satisfactory financial performance.

7. Over the last five years, the Bank has placed increasing emphasis on ensuring that projects benefit the urban and rural poor. It has encouraged the adoption of service standards and technologies that are affordable by the poor. Its program of applied research on appropriate water supply and waste disposal technologies has documented the technical feasibility and social acceptability of such low-cost options as standposts and on-site excreta disposal. The findings of this research have been widely disseminated in order to mobilize professional and political support for affordable solutions. The Bank is now executing a number of technical assistance projects financed by UNDP which seek to apply these technologies. Schemes costing a total of some US\$225 million are nearing readiness for execution, in addition to larger sanitation projects for India. Some may be included in Bank projects and others will receive financial support from other institutions.

8. The Bank has also given increasing attention and support to borrowers' programs for training lower-level technical staff. The problem of hygiene education has begun to receive more thorough attention in the last years' lending, mainly with provisions for studies to develop programs and for better coordination with other concerned Government departments.

Size and Characteristics of Lending Program

9. During the 1960s, the lending program for the water and wastes sector averaged US\$25 million per year. Between 1971-75 and 1976-80 it rose from an annual average of US\$168 million to US\$532 million in current prices (see attached table).

10. Of the 38 projects for which loans/credits totalling \$1,650 million made in FY79 and 80, 16 were for water only, 17 for water supply, sewerage and other waste disposal, 2 for sewerage and 1 for air pollution control. Of these same projects, one was for rural water supply only, while 12 were for small- and medium-sized cities and rural communities. Seven of the 36 loans made during this period were sector program loans; under these loans a national institution is responsible for on-lending to a large number of communities (in excess of 100 in some cases).

11. A survey of the water and wastes loans made in FY79 indicated that some 12.5 million people, 40% of the population to be served under the project, belonged to the urban poor. Some 18% of the investments could be

specifically identified for their use, which is a relatively high figure, considering that half or more of the investment is often required for service to industrial, commercial and institutional users.

12. Rural and especially urban development projects also frequently include water supply and waste disposal components. Such lending through rural development projects amounted to \$28 million in FY79 and \$24 million in FY80. Corresponding amounts in urban development lending were \$20 million in FY79 and \$32 million in FY80. Education projects are also beginning to include provision in appropriate cases for nationwide training programs for the water supply sector.

Major Issues and Trends

13. The water and wastes sector is an attractive vehicle for meeting basic needs because it can do so without a major permanent drain on Government resources. Progressive block tariffs have proved fully compatible with financial viability in urban areas, and sometimes also on a regional basis. Project implementation experience has been quite good, despite serious delays and cost overruns in a few cases--normally related to price inflation and lags in provision of local funding by Government.

14. The Bank has had much more limited experience to date with projects in rural areas, which it began to finance only a few years ago. In rural areas it appears often not possible to generate more than a small initial capital contribution from the villagers, followed by operating revenues sufficient to cover recurrent costs; hence full capital recovery is not expected under current Bank policies. However capital costs per family can normally be much lower in villages than in cities, and the effective constraint to the pace of expansion of rural services is in most countries institutional rather than financial.

15. The Bank's leadership in project work is acknowledged by other agencies within the framework of the UN Decade. UNDP has provided strong financial support for the Bank's research, dissemination and project-preparation work, now expanded to include hand-pump technology for rural water supply and recovery of reusable items from liquid and solid wastes. Contact is quite close with UNICEF and WHO, particularly on efforts to resolve the major outstanding problems of rural water supply financing and organization, and of health and hygiene education.

16. A major issue at this point is whether the Bank wishes to commit the staff resources necessary for the successful implementation of its past research and developmental work in the sector. Regional water and wastes divisions are now staffed on the basis of historical budgetary coefficients which reflect the staff demanded by lending operations to conventional urban public utilities. Rural and low-technology urban projects demand substantially larger staff inputs. Without sufficient staff they entail considerable risks of failure, especially embarrassing to the Bank because of such projects' visibility.

WATER SUPPLY AND WASTES LENDING

<u>Lending Program</u>	<u>Number of Projects</u>	<u>\$ Value (in million)</u>
FY82 (planned)	17	671.7
FY81 (estimated)	10	628.7
FY80	16	631.0
FY76-80 (annual average)	15.6	532.0
FY71-75 (annual average)	7.6	168.4
<u>Projects under Supervision</u> *		
As of 7/1/80	105	

* Number of loans/credits approved between FY73 and FY80, inclusive.

Sources

Table IVb: FY82 Lending Operations Monthly Report as of 12/31/80
 Table IVb: FY81 Lending Operations Monthly Report as of 12/31/80
 Table IV : IBRD & IDA: Country Lending Programs Through FY85
 as of 10/31/80.