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Meeting RESEARCH ADVISORY PANEL
MARCH 1979



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General Research Advisory Panel - Meeting Minutes and Memorandum -
Volume 3

Gen. Res. Advis. Panel
Meeting March 5-7, 1979
incl. agendas

Drafts + Reports of GRAP
and specialized Panel reports
Ms. minutes by Bery

✓

7

Comments

General Research Advisory Panel

Schedule of Meetings: March 5-7, 1979 *
Washington D.C.

March 5

- 9:00 - 10:30 Reading Period
- 10:30 - 11:45 Session I
- Topic: Organization of Bank research; the research generation and approval process; the location of researchers and research units.
- Participants:** Dubey, Duloy, King, Karaosmanoglu, van der Tak, Wright.
- Documentation: Panel discussion draft, pp. 18-23; "Issues Relating to Bank Research" (Balassa/Chenery et.al.) pp.4-7.
- 11:45 - 1:00 Session II
- Topic: Research application, dissemination and assimilation; skill maintenance and development.
- Participants: Hasan, Holsen, King, Picciotto, Wright.
- Documentation: Discussion draft, pp.25-27
"Issues": pp.7-9 and Appendix 3.
- 1:00 - 2:15 Lunch: Host, Mr. Chenery
Panel members; Baum, Bery, Srinivasan, van der Tak, Wright.
E Building Dining Room 6

* All meetings will be held in Room K-3700. Messrs. Chenery and Balassa will participate at all meetings with Bank staff. Mr. Bery will attend all meetings of the Panel, and be responsible for providing secretariat services.

** Organizational responsibilities of Bank staff participants are indicated in Annex 1. Research Committee membership is shown in Annex 2.

2:30 - 3:15

Session III

Topic: Research priorities in transportation.

Participants: de Azcarate, Harral, van der Tak,
Willoughby, Wyss.

Documentation: Report of Specialized Panel, pp. 11-26,
pp. 36-42.

3:15 - 4:30

Session IV

Topic: Data Collection and Management.

Participants: Ahluwalia, Cheetham, Duloy, Holsen,
van der Tak.

Documentation: Discussion draft, pp. 8-12;
"Issues": p. 1 and Appendix 1.

4:30 - 5:30

Session V

Topic: Research Priorities in income distribution
and employment.

Participants: Alisbah, Ahluwalia, Gulhati, Leiserson,
Lim, Please.

Documentation: Report of Specialized Panel, pp. v, vi,
12-16.

5:30 - 6:15

Session VI

Topic: Involvement of non-economist social scientists
in Bank research

Participants: Gulhati, Jaycox, King, Weiss, Wright.

Documentation: Discussion draft, p. 24;
"Issues": p.7, Appendix 2.

Evening

Free

March 6

9:15 - 10:00

Session VII

Topic: Research priorities in the 'Social Sectors'
(education, population, nutrition, health).

Participants: Golladay, Hultin, Kanagaratnam, King,
Selowsky.

Documentation: (i) Bell summary of Education panel
report research recommendations.
(ii) Research recommendations of
Berelson panel.
(iii) Comment on research in "follow-up"
report of Berelson and Freedman.

10:00 - 10:45

Session VIII

Topic: Research Priorities in agriculture and rural
development.

Participants: Donaldson, Duloy, Holsen, King,
Picciotto, Turnham.

Documentation: Draft report of Specialized Panel,
pp. 13-16, 38-42.

10:45 - 11:30

Session IX

Topic: Research Priorities in industrial development
and trade.

Participants: El-Darwish, Gulhati, Moore, Westphal,
Wood:

Documentation: Draft report of Specialized Panel,
pp. 2.17- 2.18
Second interim report of the Industry
and Trade Research Steering Group,
pp. 7-20.

11:30 - 12:15

Session X

Topic: Research Priorities in energy, water and
telecommunications.

Participants: Benard, Bronfman, Munasinghe, Sheehan
van der Tak.

Documentation: Draft report of Specialized Panel,
pp. 11-25 and Annex 2.

12:15 - 1:00

Session XI

Topic: Institution Building in Developing Countries

Participants: de Azcarate, Hopper, Hughes, Srinivasan, Streeten.

Documentation: Discussion draft, pp. 13-15
"Issues" pp. 1-2.

1:00 - 2:15

Lunch: Panel members, Bery
(D Building dining room)

2:15 - 3:30

Session XII

Topic: Research priorities and the size of the research programme.

Participants: Duloy, Holsen, King,
van der Tak, Vergin, Baum.

Documentation: Discussion draft, pp. 5-7;
Specialized panel reports as cited above.

3:30 - 5:30

Internal meeting of panel.

5:30 - 6:15

Meeting with members of Commodities panel.

Staff Participants: Hughes, Singh, Turnham, van Gigch.

Documentation: Draft terms of reference of Commodities panel.
Information on members.

Evening

Free

March 7

9:00 - 1:00 Internal meeting of panel.
1:00 - 2:15 Lunch: Panel, Bery (D Building Dining Room)
2:30 - 6:00 Internal meeting of panel.
Evening Free

List of Bank Participants

- Montek Ahluwalia
Chief, Income Distribution Division, Development Research Center,
Development Policy Staff (DPS)
- Bilsel Alisbah
Director, Country Programs Department 1, Western Africa Regional
Office
- * Bela Balassa
Acting Research Adviser, DPS
- Warren Baum
Vice President, Central Projects Staff (CPS)
- * Jean Benard
Special Adviser, Economic Analysis and Projects Department, DPS
- Suman Bery
Secretary, Research Committee and General Research Advisory Panel
- Jose Bronfman
Assistant Director, Projects, Eastern Africa Regional Office
- Russell Cheetham
Assistant Director, Economic Analysis and Projections Department,
DPS
- * Hollis Chenery
Vice President, Development Policy
- * Luis de Azcarate
Chief Economist, West Africa Regional Office
- Graham Donaldson
Chief, Economics Division, Agriculture and Rural Development
Department, CPS
- Vinod Dubey
Chief Economist, Europe, Middle East and North Africa Regional
Office (EMENA)
- John Duloy
Director, Development Research Center, DPS
- Sani El Darwish
Assistant Director, Projects, EMENA Regional Office

Frederick Golladay
Projects Advisory Staff, CPS

Ravi Gulhati
Chief Economist, East Africa Regional Office

Clell Harral
Adviser, Transportation Department, CPS

Parvez Hasan
Chief Economist, East Asia and Pacific Regional Office

* John Holsen
Chief Economist

David Hopper
Vice President, South Asia Regional Office

Helen Hughes
Director, Economic Analysis and Projections Department, DPS

Mats Hultin
Senior Adviser, Education Department, CPS

Edward Jaycox
Director, Urban Projects Department, CPS

Kandiah Kanagaratnam
Director, Population Projects Department, CPS

Attila Karaosmanoglu
Director, Development Policy, DPS

* Benjamin King
Director, Development Economics Department, DPS

Mark Leiserson
Chief, Employment and Rural Development Division, Development
Economics Department, DPS

Edwin Lim
Economist, East Asia and Pacific Country Programs Department

Fred Moore
Industrial Policy Adviser, Industrial Development and
Finance Department, CPS

Mohan Munasinghe
Energy, Water and Telecommunications Department, CPS

- * Robert Picciotto
Director, South Asia Programs Department

- Stanley Please
Director, Country Programs Department, East Asia and Pacific
Regional Office

- Marcelo Selowsky
Economic Adviser, Development Economics Department, DPS

- Richard Sheehan
Assistant Director, Energy, Water and Telecommunications
Department, CPS

- Shamsher Singh
Chief, Commodities Division, Economic Analysis and Projections
Department, DPS

- T. N. Srinivasan
Special Adviser, Development Research Center, DPS

- Paul Streeten
Special Adviser, Policy Planning and Program Review Department,
DPS

- * David Turnham
Rural Development Adviser, Agriculture and Rural Development
Department, CPS

- * Herman van der Tak
Director, Projects Advisory Staff, CPS

- Francis van Gigch
Assistant Director, Projects, Western Africa Regional Office

- Heinz Vergin
Assistant Director, Programming and Budgeting Department

- * Alan Walters
Urban Adviser, Urban Projects Department, CPS

- Charles Weiss
Science and Technology Adviser, Projects Advisory Staff, CPS

General Research Advisory Panel

March 5-7, 1979
Washington, D.C.

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(b) Research Scale and Priorities

1. Agriculture and Rural Development

Draft report of Specialized Panel, pp. 13-16,
38-42.

2. Education

- (i) Memorandum from Mr. Bell to Sir Arthur
Lewis.
- (ii) Report of Education Panel, pp. 28-29.

3. Energy, Water and Telecommunications

Draft report of Specialized Panel, pp. 11-25
and Annex 2.

4. Income Distribution and Employment

Report of Specialized Panel, pp. v, vi, 12-16.

5. Industrialization and Trade

Draft report of Specialized Panel, pp. 2.17-2.18,
Second interim report of the Industry and Trade
Research Steering Group.

6. Population

Report of Population Panel, pp. 29-32;
"Implementation Review", pp. 10-11.

7. Transportation

Report of Specialized Panel, pp. 11-26 and
pp. 36-42.

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1. Membership.

2. Draft Terms of Reference.

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II. Other Materials

1. "Research" out of Loans and Credits:
Memorandum from Mr. A. Ray.
2. 'Work Programs': Memorandum by Mr. B. B. King
3. 'Building Research Capacity in Developing Countries': Note by Mr. P. Streeten
4. Notes by Mr. Mahn Je Kim:
 - (i) Gaps in knowledge in Development Economics
 - (ii) Comments on papers in Commodities
 - (iii) Comments on Bank Research on Population Issues

OFFICE MEMORANDUM

TO: Members of the General Research Advisory
Panel

FROM: Suman Bery, Secretary

SUBJECT: Arrangements for Meetings, March 5-7

DATE: March 5, 1979

1. Members of the panel have the following offices assigned to them for their use during their visit to the Bank:

Mr. O. Aboyade	K 3706	Ext. 60025
Mr. D. Bell	K 3601	Ext. 60019
Mr. H. Giersch	K 3606	Ext. 60016
Mr. N. Islam	K 3306	Ext. 61973
Mr. M. Kim	K 3323	Ext. 60003
Sir A. Lewis	K 3600	Ext. 60021
Mr. E. Malinvaud	K 3604	Ext. 60018
Mr. C. Massad	K 3702	Ext. 60029

2. All of these offices are on the 3rd floor of the K Building of the Bank, in the premises of the Development Research Center. The address of the building is 1850 K Street, N.W., and it is at the southeast corner of the intersection of 19th and K streets. The positions of the Bank's offices are indicated on the street plan appended to this note. For the duration of the meetings, I will be occupying Room K3321. A secretary, either Miss Leela Thampy or Miss Barbara Frazier, will be available to assist the panel.

3. The panel is scheduled to hold working sessions from approximately 9:00 a.m. to approximately 6:00 p.m. on each of the three days, as per the attached program. All meetings with Bank staff as well as internal meetings of the panel will be held in Room K3700, the DRC Conference Room.

4. As per our present information, panel members will be staying in the following hotels:

Mr. Aboyade	Guest Quarters
Mr. Bell	Hay Adams
Mr. Giersch	Guest Quarters
Mr. Islam	Guest Quarters
Mr. Kim	Guest Quarters
Sir Arthur	Capitol Hilton
Mr. Malinvaud	Guest Quarters
Mr. Massad	Guest Quarters

5. I would appreciate being called by you on arrival in Washington. I will be either at home (920-0313) or at the office (477-6003).

Memorandum to General Research
Advisory Panel

- 2 -

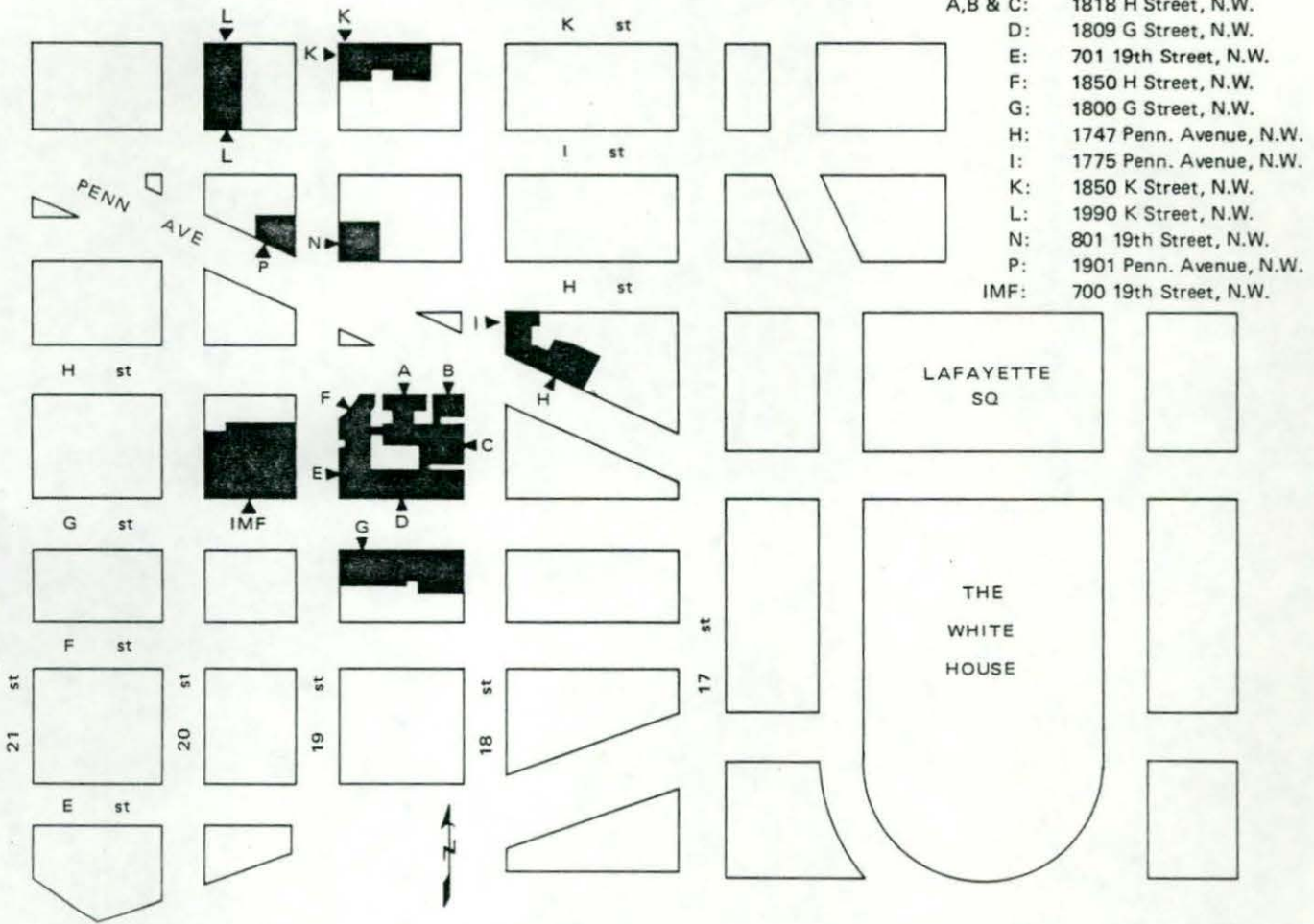
March 5, 1979

6. Panel members are requested to proceed on their own to their K building offices on Monday morning, where Mr. Balassa and I will meet them. Mr. Balassa's office is K3411, Ext. 61998.

Attachment

SBery:tr

STREET PLAN OF BANK OFFICES



OFFICE MEMORANDUM

TO: Those Listed Below

DATE: March 2, 1979

FROM: Suman Bery, VPD *SKB*SUBJECT: Meeting with General Research Advisory Panel

1. This is to confirm your participation at a meeting with the General Research Advisory Panel in Room K-3700 from 2:15 p.m. to 3:30 p.m. on Tuesday, March 6. The topic for discussion at this meeting will be "Research Priorities and the Size of the Research Programme".

2. These issues have been addressed in the reports of various panels examining Bank research in a variety of fields over the past four years. A set of these reports is attached. Page references to the relevant discussions in each report are as follows:

<u>Field</u>	<u>Status of Report</u>	<u>Page References</u>
Agriculture and Rural Development	Draft	pp. 13-16; 38-42.
Education	Final	See abstract of recommendations on research provided by Mr. David Bell, attached.
Energy, Water and Telecommunications	Draft	pp. 11-25.
Income Distribution and Employment	Final	pp. v, vi, 12-16 .
Industrialization and Trade	Draft	pp. 2.17 - 2.28.
Population	Final	pp. 29-32 and pp. 10-11 of "Follow-up" report.
Transportation	Draft	pp. 34-60.

3. The General Panel's initial sketch of a "Research Agenda" is provided in Chapter II of the discussion draft which all of you should have received previously.

Attachments:

Distribution

Messrs. W. Baum
J. Duloy
J. Holsen
B.B. King
H. van der Tak
H. Vergin

cc: Mr. Bela Balassa

SKBery:lt

DISCUSSION
Draft

Princeton University WOODROW WILSON SCHOOL
OF PUBLIC AND INTERNATIONAL AFFAIRS
PRINCETON, NEW JERSEY 08540

February 21, 1979

Suman Bery, Esq.
The World Bank
1818 H Street, N.W.
Washington, D.C. 20433

Dear Suman:

I have been out of the country for much of the time since the day your draft arrived, so I have had no time to meditate.

The draft was too long. I have cut it, and have also left out some of the argument. Having the draft was very helpful.

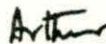
I have made the following list of topics on which we shall need more evidence.

- The Bank's own view of research priorities for the next five years.
- The efficiency of the split into ten research units.
- The Bank's use of other social services.
- Staff training and refreshers.
- Views of the regional departments.
- Research Committee members' view of how big the research budget should be.

I hope we can restrict the enclosed document to panel members plus another six or so, rather than circulate widely.

With best wishes.

Yours sincerely,



W.A. Lewis
Professor of Political Economy

WORLD BANK

TO: Members of the General Research Advisory Panel

FROM: W.A. Lewis, Chairman

SUBJECT: Framework of the Report

DATE: February 23, 1979

The attached framework is submitted in the form of a draft report, drafted by Mr. Bery, with contributions from me.

In this form the panel appears to have reached conclusions on a number of matters that it has not even discussed! This is not part of a conspiracy; merely an effort to discover our terms of reference, and to clarify what we are supposed to think about.

At this stage we should ask ourselves (i) what topics are left out, (ii) what are the right conclusions, and (iii) what are the right words. We shall concentrate on (i) and (ii) in March, postponing most of (iii) until June.

Incomplete First Draft
Preliminary and Confidential

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Apr. 1, 2019
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Report of the Research Advisory Panel

World Bank
Washington, D.C.

Chapter I: Introduction

1.01. Research has been an established part of the World Bank's economic work for over twenty years. In the latter half of the 1960's, Bank research activities began to expand in response to the diversification in Bank operations. In 1971, the Bank created a separate, centralized budget for research. At the same time a standing committee known as the Research Committee was established to formulate guidelines for Bank research and to administer the Bank's research budget. Four objectives for Bank research were enunciated in 1971 and have remained in effect to the present. These are :

- (i) To support all aspects of the World Bank's operations, including the assessment of development progress in member countries;
- (ii) To broaden understanding of the development process;
- (iii) To improve the Bank's capacity to give policy advice to its members;
- (iv) To assist in developing indigenous research capacity in member countries.

1.02. While the Bank regularly reviews individual research projects as they are completed, since 1977 it has undertaken more comprehensive reviews of its research activities in a number of areas. Panels of outside experts have been invited to comment on the Bank's research on income distribution and employment, agriculture and rural development, commodities,

industrial development and trade, public utilities and transportation. These panels have assessed the quality and relevance of past Bank research in their field, identified important areas for further research and provided their judgements on the special contributions that the Bank could make in such research. These Specialized Research Advisory Panels (SRAPs) 1/ were also invited to comment on general issues connected with the Bank's research efforts, such as the organization of Bank research, relationships between producers and users of research within the Bank, and the Bank's relationships with research institutes in member countries. All of the SRAPs have included such remarks in their reports, and we have benefited greatly from these. In addition to the SRAPs, External Advisory Panels have examined the entire range of Bank activities in the areas of population and education. These panels have commented on Bank research activities in these fields, and we have read these observations with care. 2/

1.3. The Bank's intention in establishing the present General Research Advisory Panel was to seek judgements on general issues concerning the Bank's research posture in the future. Our draft terms of reference defined the panel's task as follows:

"The primary objective of this review will be to assess the size of the overall research program and its chara-

1/ The membership of these panels is provided in Annex _____.

2/ Reference to all these reports is provided in the Bibliography.

ter and balance. This should be done in the light of the Bank's operations in, and advisory services to its member countries, with consideration given to the role it should play in increasing worldwide understanding of the development process." The panel was also asked to review the objectives presently enunciated for the program, to determine whether they needed reformulation or ordering in terms of priority.

1.04 The Panel was invited to establish its own final terms of reference after its meetings with Bank staff. We did not formally choose to do so. Our deliberations have however been concerned with the following broad questions:

- (i) What have been and ought to be the Bank's objectives in undertaking research? Who are and ought to be the Bank's principal audiences?
- (ii) What are the Bank's own needs for research?
- (iii) What kinds of research is the Bank most suited to undertake?
- (iv) What are important areas of research for the Bank to enter in the future, given its objectives, aptitudes and needs?
- (v) What is the appropriate size for the Bank's research program
- (vi) What improvements are needed in the organization and execution of research by the Bank?
- (vii) How can the Bank better assimilate the fruits of its research in its operations? How can it better propagate these results to its other chosen audiences?

(viii) What policies should guide the Bank in its relationships with other research institutions? What responsibilities should the Bank assume toward the development of indigenous research capacity in member developing countries? How best should it sponsor such development given its own needs and abilities?

(ix) What role and responsibility is appropriate for the Bank in the area of data generation, management and dissemination?

1.05. Our concerns have been forward looking rather than retrospective. We have derived the bulk of our impressions on the quality and relevance of past Bank work from the judgements of the specialized panels, rather than attempting an additional extended review ourselves. We have been conscious of the intrinsic difficulty of answering many of the questions listed above, especially for a group of outsiders not very familiar with the internal workings of the Bank.

1.06. The organisation of the Report is as follows. The next chapter identifies areas where research could improve the Bank's performance. Chapter III discusses how far the Bank should do such research itself, with or without the collaboration of other institutions. Chapter IV examines the organisation of research within the Bank. Chapter V is concerned with the dissemination of the results of the Bank's research. Chapter VI assesses the appropriate scale of the research programme.

CHAPTER II. THE RESEARCH AGENDA

2.01. The Bank is a major consumer of research results, whether of its own research, or of the work of other persons or institutions. How much research it should do of its own, and how much it should rely on others we shall consider in Chapter III.

2.02. All the sciences contribute to the work of the Bank, but in this report we confine ourselves to the social sciences, and more particularly to economics. The Bank has itself financed important technological studies concerned with design, materials or construction techniques appropriate to tropical countries, especially in the areas of road-building, and of waste disposal, and we are impressed by the scope for further work of this kind. The Bank has also been a major contributor to the budgets of the international agricultural research institutions supported by the Consultative Group on International Agricultural Research; indeed it now contributes to this group more than it spends on all other research added together. We are aware of the importance of technological research, and of the Bank's desire to reconsider its position in this field. We are not however competent to advise on technological research, and have confined ourselves to a brief Appendix on this subject.

2.03. The Bank's need for the results of social science research may be considered under two separate heads; research whose results are likely to be incorporated directly into the design of projects towards which the Bank is making loans; and research which will be incorporated into the Bank's general policy functions. It is easily understood that the Bank needs the results of project-related research; it is not always remembered that the Bank is engaged in analysing the economic situation of its members, and in charting the course of world economic development,

for which it needs to use the widest range of economic techniques. About 60 per cent (?) of the research expenditures controlled by the Research Committee have been for project-related and 40 per cent for general research.

2.04. It is not necessary to argue a case for research that would improve the design of the Bank's research projects. We merely list some topics which we think should be accorded the highest research priority, based partly on our experience and partly on the recommendations of the Specialised Research Advisory panels. [List awaits receipt of their reports; would presumably include

Small scale industry

~~The competitiveness of railways~~

Management of public enterprises

Delivery of low cost basic services (especially health, education, water)

Adaptation of technology

Integrative rural institutions

Growth poles and how to contain them

Land settlement].

This list is not meant to be exclusive. It does not include all the important activities of the Bank, but mentions only those where research might considerably improve design. And it does not imply that projects should not be undertaken in these areas until research results become available. (On the contrary: as we later suggest, evaluation of completed projects should become an important source of improvements in design).

2.05. One can make a similar list of topics where greater knowledge would improve the analysis of economic situations, if not also the performance of economies:

Energy & development

Sources and control of inflation

The flexibility of tax revenues

Inter LDC trade in the light of the changing patterns of
world trade

National income accounting for LDCs

Techniques of development planning

Development and income distribution

Labour markets ✓

Development and human fertility

2.06. These lists have been drafted without prejudice to the question whether the research should be done inside or outside the bank. To this question we now turn.

*Entrepreneurship
(Kilby)*

CHAPTER III. THE BANK'S ROLE IN RESEARCH

3.01. The Bank's contribution to research falls under three headings:

- (i) Research controlled by the Research Committee, plus departmental research (a distinction which will be clarified in Chapter IV).
- (ii) The Bank's contribution to the international agricultural research institutions.
- (iii) Research financed by member countries under loans and credits from the Bank.

Table I (not distributed) provides an indication of the relative size of these three facets of Bank financing of research.

3.02. This report is concerned only with item (i) above. The Bank seems to have little influence on the expenditures in item (iii). (Does the group wish to pursue this)?

Data Collection

3.03 Before taking up research itself we should spend a moment with the subject of data collection, which is its pre-requisite.

3.04. The situation in this regard is somewhat paradoxical. On the one hand we are continually told that the absence of suitable data ^{hand} is a major constraint on empirical research. On the other/ there is ample evidence of large and valuable data sets already in existence languishing in neglect and disuse with their analytic potential only barely exploited. We regard the payoff to a more systematic effort at documenting, archiving and disseminating survey data sets as potentially very high, and a necessary first step before new initiatives are taken, particularly in the realm of

household surveys. One important by-product of any such comprehensive documentation would be to identify particular countries and topics where second round surveying would be most fruitful in establishing the evolution of processes over time. On this selective basis the Bank might wish to finance the collection of further household data. These strictures not withstanding, the Bank probably will continue to undertake and finance primary data collection in the future. We feel strongly that the Bank has a responsibility to itself and to the development community

for a greater effort at the documenting and archiving of at least these data. Our impression is that there are currently only ad hoc arrangements for such documentation and retrieval, and that responsibility for the maintenance of data sets rests, if at all, with economists and analysts. The Bank should recognize that the data set itself is an important output of its research effort and move to establish the necessary in-house capability in the specialist functions that data management involves.

3.05 The issues regarding essentially ad hoc needs for research data are different from those involved in the institutionalized generation of time series data. The Bank has been assigned official responsibility within the U.N. family for data on the debt of developing countries, and it has moved to discharge this obligation conscientiously. The maintenance of such capacity is an expensive business: the Bank's expenditure on maintaining the debt reporting system (DRS) is estimated to be \$. In considering any extension of these responsibilities, four questions arise: the Bank's needs for such regularly updated data; the Bank's comparative advantage in filling these needs by itself; the cost of doing so; and jurisdictional issues within the U.N. system.

3.06. On the question of Bank needs for data, a distinction should be drawn between its needs for country specific information using country concepts and definitions, and its need for internationally comparable data series. As the Bank itself has come to realize the two needs are not easily met in the same

fashion or from the same sources, nor do they necessarily have equal utility in all contexts. Country specific data, rather obviously, are most useful in the conduct of country policy dialogue, while internationally comparable data are of importance in commentary on world trends, assessment of development progress and for presentation in such documents as the World Development Report. In addition the Bank has ^{become a} ~~taken upon itself the role of~~ disseminator of cross-country data qua data, via documents such as the World Bank Atlas, the recent 'Atlas of the Child', and the superb "World Development Indicators" appended to the "World Development Report, 1978". For better or worse, the Bank's flair for preparation of such compilations, coupled with the formidable efficiency of its public relations machinery has resulted in these document becoming standard reference sources for those interested in development. The question here is whether such a role as propagator imposes further responsibilities on the Bank for accuracy, consistency and comparability or whether the existing disclaimers should be allowed to absolve the Bank from responsibility.

3.07. Turning first to the issue of country specific data, the Bank has not made very vigorous efforts to upgrade the quality of national statistical offices or country wide data systems. This is a responsibility which has been assumed primarily by the U.N. Statistical Office (U.N.S.O.) who have had the expertise and traditional role in this area, particularly with regard to macroeconomic data. We regard this specialization as appropriate, and would recommend that any attempts to upgrade

basic national accounts data be prosecuted through the U.N.S.O. than by the Bank on its own. On the macro financial side of the economy we equally see no reason for the Bank to supplant or supplement the professional and admirable job being done by the Bureau of Statistics of the I.M.F. The major areas where there may be a role for the Bank to play is the area identified by the RAPIDE panel: the area of income distribution and employment. The recommendation of that panel reads as follows:

"We recommend a considerably greater initiative and expenditure by the Bank to assure collection and dissemination of reliable, consistent and continuous data on income distribution and employment. For a number of representative countries, time series data should be obtained. Information should be sought for relevant socio-economic groups. Data collection and analysis, particularly in the preliminary phases, should be closely related".

The report also recommended a decisive Bank contribution to the design and execution of the 1980 Census in a representative group of countries. This could be a very convenient way of getting consistent data on income distribution and employment and we endorse this recommendation with respect to the Census, while remaining doubtful of the justification for more elaborate expenditure by the Bank to collect data on distribution and employment.

Collaboration with LDC Institutions

3.08. We now turn to the question how the Bank might decide which of its research needs it is appropriate for it to meet itself, through the use of its own research staff, which needs are best farmed out by it to other institutions, and which areas, if any, it should not attempt to enter at all. In making these judgements we consider not only the Bank's comparative advantage as a research institution, but also its currently avowed goal to assist in the development of indigenous research capacity in developing countries. Our approach therefore, is to see which of its research needs could be efficiently delegated by the Bank to other institutions, leaving the remainder as the area where the Bank might equip itself in new directions.

3.09. We begin with a discussion of the scope for delegating Bank research to LDC research institutions. The Bank's formal commitment to strengthening these institutions has taken the form of collaboration in joint projects. There have been such projects under the external research program, and the range of association has been wide, ranging from assistance in data collection to subcontracting of complete studies. All involvement so far has been through joint projects. The Bank has avoided making block grants to socio-economic research institutions.

3.10. Such collaboration is reduced by a number of obstacles. First, the number of LDC research institutions adequately staffed for such research is limited, and most of these have research priorities of their own. This obstacle is only partly financial, and in so far as it is financial it can largely be eliminated by the Bank contributing generously both to the direct and the indirect costs of LDC institutions with which it is doing joint research projects. A more fundamental obstacle is the

limited number of trained personnel, and the demands for their services from universities, government departments and the private sector.

Elimination of this deficit will take time.

3.11. Another limitation is imposed by lack of data. Relatively few developing countries have collected the data required for quantitative research, so the Bank's collaboration tends to be confined to those that have. The problem is not so acute where what is required can be obtained by means of sample surveys, since the Bank has been willing in many cases to finance such surveys -- in contrast with census aggregates and time series, which are beyond its financial range.

3.12. A further difficulty associated with collaborative research from the point of view of the Bank is the heavy managerial burden that it imposes on Bank research staff. The structuring of collaborative agreements, the supervision of work plans, the monitoring of output and the enforcement of quality are all time consuming and arduous tasks with a high risk attached to them. At present these burdens are assumed by the project supervisor who is a researcher rather than an administrator, and who is likely only by accident to possess the diplomatic and political skills needed to structure and execute such collaborative ventures. In addition, there is undoubtedly the feeling amongst researchers that such diversion of their energies is inadequately appreciated and rewarded, and that the inherent risks in such relationships are borne by them with corresponding penalties if, at the end of the process, they or their collaborators are unable to deliver the promised product. As a consequence of these risks there is some reluctance among Bank staff to getting involved in complex multi-country projects.

3.13. While we recognise the cost to the Bank of the managerial responsibility, we also see the value of such assistance to the LDCs, and consider it to be worth much more than it costs the Bank. As for its effect on the careers of Bank research staff, we consider that when staff assessments are in progress, due regard should be paid to problems beyond the control of a staff member which may have limited his research output. Presumably the same kind of problem arises in assessing the performance of staff who are designing and negotiating loan projects.

3.14. Some problems of collaboration are eased by bringing to Washington for periods of a few months, from the staff of collaborating LDC research institutes, researchers who are collaborating in joint projects with the Bank. Working together eliminates some misunderstandings. The LDC researcher has more time in Washington to make his points to his Bank collaborators; and on returning home sees more clearly how the work in the two centers needs to be coordinated.

3.15. Finally, apart from collaborating with institutions, the Bank could act like a foundation, making grants to LDC persons or institutions for research of their own choosing. We do not recommend this since we think that for the time being the Bank's staff should be involved in choosing and participating in any socio-economic research that it is financing.

Collaboration with MDC Institutions

3.16. We turn next to the appropriate relationship between Bank research and research institutions in developed countries. Past contacts between the Bank and such institutions have been characterized by some of the same problems as those encountered with developing country institutions. The situation is somewhat easier because developed country institutions are better staffed and less subject to political pressure than their developing

country counterparts. On the other hand there is a similar tendency for consultant researchers to move into more theoretical and less practical aspects of their research assignments. As a result, the managerial burden associated with the use of such collaborators is only marginally less than that associated with their developing country counterparts. Given the relatively small sums that have been available for all external research the Bank has on the whole avoided entering into collaborative research ventures with developed country research institutes.

3.17. There are, nevertheless a number of cases where the hiring of a particular consultant or firm of consultants is clearly either the cheapest or the most effective way of tackling a particular problem, because of special expertise. Examples are the project on the international comparison of national incomes, and the project on low cost disposal of human wastes. Indeed the hiring of consultants is almost inescapable where the research project has a large technological input.

3.18. We endorse both the reluctance of the Bank to cultivate financial collaboration with MDC socio-economic research institutes, and also its freedom to use consultants in cases of special expertise.

Research within the Bank

3.19. We come finally to a discussion of the Bank's comparative advantage in research. It is frequently asserted that this lies primarily in its access to data—partly the data submitted to it in connection with project applications, and partly its own accumulated experience. This should be so, and therefore the Bank should have an advantage in project-related research. In practice the Bank has not made much use of its projects or project data for research purposes and is not noticeably better at designing projects than are other development agencies. In recent years

it has started regular project evaluation, and we hope that this will give rise to new generalisations and new opportunities for testing various kinds of policy.

3.20. In practice the Bank's de facto comparative advantage has emerged from rather different forces. It has acted as a residual supplier of research in areas where it needed work that was not being done elsewhere. It is in these areas where it has taken a leadership role that it has come to possess a comparative advantage in research. Examples are the Bank's past research in the areas of income distribution, highway design, waste disposal and sector programming. The comparative advantage derives from the leadership in the field.

3.21. Now leadership depends on leaders. Given the size of the program, Bank research should be organised around some six to ten leaders, each with a team, working on a cluster of closely related topics. The Bank does not have this number of "star" performers, but those that it has have certainly paid off.

3.22. It seems to us that the residual supplier principle should dominate the Bank's research strategy; that the Bank, having considered its research needs, should undertake for itself, or in collaboration with institutions in developing countries, research not being done elsewhere; should modify for its own use approaches or techniques pioneered elsewhere; and should avoid working in areas which are already well covered elsewhere. Occasionally this may involve staff changes, as existing veins of research are worked out, if their leaders do not fit into new programmes, but this should not be a problem in a large institution with many different kinds of jobs to move into.

CHAPTER IV. THE ORGANIZATION OF RESEARCH WITHIN THE BANK

4.01. We deal in this chapter with issues internal to the Bank: the structure of its research establishment, the machinery for generating and approving research proposals, and the effects of this structure on the research programs.

4.02. We begin with the present structure of the research community within the Bank. The Bank's staff of researchers are currently scattered across a wide variety of organizational units. Only one department, the Development Research Centre (DRC) in the Development Policy Staff (DPS), is exclusively concerned with research. This unit has accounted for roughly a quarter of Bank professional staff time devoted to research. The bulk of the research undertaken by the DRC is in the form of projects approved by the Research Committee. Its fields of interest have been diverse, but the unifying theme has been a proclivity for quantitative economics and formal modelling. The major areas of concentration for the DRC have been sector planning models, economy-wide models, income distribution studies and effective protection studies. While the DRC has been a leader in these areas, it has not been the only locus of work in these fields at the Bank, which has spread to other departments.

4.03. In contrast to the DRC, the remaining research units in the Bank are functionally specialised; and they also have responsibilities other than pure research. There are currently five such divisions in the DPS, all in the Development Economics Department (DED), and four departments in the Central Project Staff (CPS), who have a significant mandate for research. However, in the case of the Development Economics Department the same divisions also have responsibility for policy work

and for supporting regional economic staff in their country and sector economic work, while in the CPS the relevant departments have responsibility for functional review of projects in the relevant sector and for sectoral policy papers. What is relevant for our purposes is not just the diversity of tasks mandated to the division, but rather the tasks mandated to the individuals who constitute the division. Our impression is that in the CPS individual researchers are required to undertake a wider range of activities than in the DED, where certain individuals are permitted to specialize as researchers.

4.04. In several of these research units the number of research staff is too small to handle projects that require several manyears. The practical division is therefore that large projects in their subject matter are done by the Development Research Center, while they do only what can be done on a one or two man basis; but this does not apply to all of them.

4.05. Apart from these units in the CPS and the DPS, the Research Committee funding mechanism makes it possible for non-research units (such as regional country program departments) to undertake some research as well, supervised if not also executed by regional staff.

4.06. Expenditure on research as provided for in the administrative budget is of two sorts. There is, first, the central pool of funds allocated by the Research Committee. This pool is known as the "external research" budget, and exists to finance expenditure on consulting, travel, and data processing on projects approved by the Research Committee (so-called RPO projects). The size of the external research budget has remained frozen in real terms since 1973, at a level corresponding to roughly \$2.5 million in 1978 dollars. It should be noted that research projects come before

the Research Committee only if they need "external" finance; if not, then expenditure is carried on departmental budgets, and they are known as departmental research, in distinction from RPO research. These tend to be the smaller projects. But they are numerous; about 60 out of the 140 research projects listed by the Bank in 1978.

4.07. The other budget item is the imputed cost of staff time spent on RPO or departmental research. This was of the order of \$7 million in 1978, and has been involving some sixty to seventy professional manyears. Thus the total research budget, external plus personnel, totals about \$9.5 million.

The Research Community

4.08. This fragmented structure of research units, and the diversity of obligations imposed on researchers must have some adverse effects on performance. We have therefore considered whether it might not be better to concentrate all major research activity in one or two specialised units like the DRC.

4.09. A unified research community would have some advantages. First, its staff would be more highly specialised in research, having no operational responsibilities; its research capability would therefore on average be higher than that of units where operational skills rank equally with or higher than research skills. Secondly the research program could be more manageable, especially if it is true that some of the research units are too small. Thirdly, it might help to bring all researchers together in one unit instead of ten; a research unit has a culture of its own, which results in high morale, mutual aid, cross-fertilisation and high achievement.

4.10. The disadvantage of consolidating all research into a restructured DRC is felt to be that it would remove research still further from operations. Some topics with a strong policy or institutional flavour are better handled by people in policy sections than by the more theoretically inclined people, who would gravitate to the DRC, dominate it, and deflect funds away from the more practical topics.

4.11. This disadvantage may well be an advantage. While it is true that some research topics are thrown up by operational problems, it is also true that much useful research runs ahead of operations. A research program drafted and directed by operating staff only would tend to run behind current practice, instead of being a source of innovation. We want research workers neither to be dominated by operational staff nor to be deaf to them. The problem is to devise a structure in which researchers have at the same time their head in the clouds and their feet on the ground.

4.12. We believe that sooner or later the Bank will concentrate all major research into a single administrative unit, but we do not know whether the time is ripe for this, having regard to all the internal administrative elements that bear on such a question. When that time arrives we would direct attention to the phrase "major research" since professional staff in policy or operational units will always have small research problems to solve as part of their work, and their departments should always make some provision for such research in their own budgets (research assistants, computer time, documents etc.).

The Research Program

4.13. Meanwhile, we assume that the existing structure will remain for the time being. We are then faced with two related problems: the relationship between research and operations, and the management of the program.

4.14. Currently the operational staff complain that the Bank's research program is not sufficiently geared to its operations. We have already pointed out that a research program does not have to come out of operations; nevertheless the Bank has serious operational problems which could be the basis of relevant and interesting research. The question is how to make sure that these problems get on to the Agenda.

4.15. The answer has to be that the operational staff must articulate them, and must have routine opportunities for promoting them in the appropriate quarters.

4.16. It is easier to provide for the second of these (machinery) than for the first (articulation). A research problem is something more than an idea. Somebody has to devise means of pursuing the idea; he must be familiar with the literature; must know where to find or how to collect relevant data; and must know what tools can be used in analysing the problem. We are told by some department heads that this is where the chain breaks; their people are either not sufficiently well-informed or else too busy to find the time required (possibly several weeks) to design major research projects.

4.17. The answer is to hire a consultant for this purpose. The Bank cannot keep a staff member to do this over the wide range of topics covered in its researches; he would not be sufficiently specialised. But if one knows the field, one can always find a senior consultant who specialises in one's problem, and can give rapid and informed answers.

4.18. We also propose a new piece of machinery which will bring research and operations staff closer together. The Bank should divide its research by subject matter into about six areas (as it has done for Specialized Research Advisory Panels). For each area it should create

a "Steering Group", consisting in about equal numbers of suppliers and consumers of research in that area (senior members of research divisions and senior members of regional departments). Each Steering Group would have the following terms of reference:

- (i) To review Bank needs for research in its area and report regularly (every 18 months?) to the Research Committee on priorities.
- (ii) To assess new proposals for research projects, and forward to the Research Committee those that it endorses.
- (iii) To review research projects in progress, and make appropriate recommendations.

4.19. These tasks are all within the mandate of the Research Committee. We believe that they would be done better if spread among half a dozen Steering Groups. The Research Committee's main function would then be to consider priorities among subject areas, as well as general questions of research organisation which affect all or several groups.

4.20. To ensure coordination we recommend making the Research Adviser chairman of each of the Steering Groups. On him would fall the documentation and other staff work required in advance of meetings, and the task of following up decisions. And he too would be in the frontline of misunderstandings between the supplier and consumer members of a Steering Group that threatened to reduce performance. He would need adequate staff for these duties.

Evaluation

4.21. The Evaluation Department of the Bank monitors projects after they are completed to see how they are working out. Such monitoring throws up faults in project designs which should lead the Bank to modify its policies. Evaluation studies should yield some useful projects. We recommend that the Evaluation Department be represented on Steering Groups.

Other Social Services

4.22. One final issue relating to the organisation of the research community within the Bank is the role of non-economists. As noted earlier, Bank research has been dominated by economics. However, with the Bank's more purposive attempts to engineer social change and to comment on such change, the Bank will need social scientists in other fields, particularly sociology. At the moment the research culture of the Bank is generally unreceptive to the point of view of such specialists, and the Bank does not appear well equipped to get the best out of such staff.

4.23. The number of such staff will probably grow even faster in the operations departments than in research, as the Bank expands its lending programs in such areas as rural development, population, education, health services or town planning. We doubt that it would be appropriate to create within the Bank a separate division for social scientists other than economists. Presumably they will be integrated into existing units in much the same way as economists and engineers now serve together. Our immediate concern is that the point of view of social scientists other than economists should even now be represented in the proposed Steering Groups.

CHAPTER V. INCORPORATING RESEARCH RESULTS

5.01. In this Chapter we deal with dissemination within the Bank of the results of Bank research, and also with dissemination to the outside world.

5.02. Much is already done for dissemination within the Bank, especially by means of staff working papers, and by circulation of reprints of published papers. We think it might help to put this on a regular footing by circulating within the Bank a quarterly journal, carrying abstracts of research reports, grouped by subject. Such abstracts should be as non-technical as possible.

5.03. Face to face communication is even more to the point, if it can be effected. The Bank has a network of seminars, which discuss work in progress or completed. In most of these the host is the supplier of research, and the participants are other research workers. It would help if heads of operational units could organise a set of seminars, conducted at an intermediate level, where the supplier of research would be the guest.

5.04. The problem is to get the non-research staff to spend time reading research results and attending seminars. And this problem merges into the more general one of stimulating Bank staff to keep abreast of developments in their fields, whether emerging from Bank research or from any other source. There is not much incentive for them to do so, beyond pride of self. They feel themselves to be under pressure to design new loan projects, more or less on standard Bank lines, and are not rewarded for innovation or for learning. It seems to us that the Bank has a general problem of how to maintain and upgrade the skills of its professional staff (whether by sabbatical leaves, by temporary exchange of jobs inside the Bank, or by advanced training programs) and

that if this is solved the problem of disseminating research results inside the Bank will also be solved automatically.

5.05. We turn next to the dissemination of results outside the Bank. The standard vehicle for this is the publication of research memoranda in mimeographed form. These are sent to economic research institutes all over the world (except in the United States for some unfathomable reason). In addition a number of these papers are published in the standard journals. We feel that the Bank's research memoranda are in the public domain, and that any serious scholar wishing to consult them should have access to them in one or more major libraries in his country, just as United Nations publications can be consulted in depositories all over the world. This appears not to be the case.

5.06. It is particularly desirable that research results reach the officials and consultants in LDCs who are designing projects into which the results could be incorporated. Arrangements should be made for authors to visit such countries and hold seminars on their results. Research results should be introduced into courses at the Economic Development Institute, and participants encouraged to transmit what they have learnt to project designers on returning home.

5.07. Finally in some cases where Bank research has produced new techniques that have aroused wide interest (e.g., programming large scale industry, calculating effective protection, social accounting matrix) the Bank is asked by several members to send staff who will help train local staff in the new technique. The research budget makes no provision for this. The particular staff members who worked on the research project are not likely to be available for much work of this kind. It would, however, be possible to train some other staff member, or one or more

consultants, who might make a series of such visits. The Bank could pay the cost, not out of the research budget but as a part of customer relations.

CHAPTER VI. THE SIZE OF THE PROGRAM

APPENDIX: TECHNOLOGICAL RESEARCH

Most of the Bank's research is in the social sciences, but it has also done some technological research. It is quite clear that some technological breakthroughs (e.g., in the management of arid lands, or elimination of the tsetse fly, or cheap desalination of water or cheap pulping of tropical hardwoods) could do more to raise the living standards of LDCs than most high priority social science research. It is therefore reasonable to ask whether the Bank should not be contributing more than it does to technological research.

The potential contribution of research to LDC welfare has been studied for many years by ACAST, the United Nations Advisory Council on the Application of Science and Technology to development. ACAST published in 1971 a report called The World Plan¹ in which it discussed the possibilities and set out the priorities, both for research and for the application of existing knowledge. The priorities for research are listed in Chapter I of the Plan, pages 7 to 21, and discussed in detail in later chapters. Apart from agricultural topics, they may be headlined briefly as follows.

Fisheries techniques; marine resources
Tropical hardwoods; utilisation and management
Groundwater surveys
Desalination
Natural disaster warning systems
Indigenous building materials
Industrial processes and appropriate equipment
Schistosomiasis
Human fertility

¹New York, 1971. E 71 II A 18.

We are not competent to advise the Bank whether this or any other list is the right one, or how it should proceed in any of these cases if wanting to make useful contributions. We recommend that it assemble a small panel of scientists and technologists to spend a few days discussing how the Bank might usefully proceed.

Memorandum

ISSUES RELATING TO BANK RESEARCH

Bela Balassa and Hollis Chenery

Introduction

This note examines the main issues that have been proposed for discussion at the March 5-7 meetings of the General Research Advisory Panel. It further develops some of the themes contained in the draft report prepared by Sir Arthur Lewis, to which page references are made under each heading.

Data Collection (pp. 8-12)

Among the specialized panels, RAPIDE has emphasized the need for Bank action in this area. Their proposal has been studied by the DPS and a proposal is being prepared for Mr. McNamara. It will recommend that the Bank should work with selected countries in the development and use of statistics on income distribution but should not attempt to perform the U.N.'s role of continuing data collection in this field. We would, however, try to relate data collection and analysis in several countries.

More general aspects of data collection and management are discussed in the attached note by Jack Duloy (Appendix 1).

Collaboration with LDC Institutions (pp. 13-15)

Taken together, the two main conclusions in paragraphs 3.13 and 3.15 of the draft report imply that the Bank's fourth research objective listed in paragraph 1.01 (to assist in developing indigenous research capacity) should be given greater weight in designing the research program but should not be carried out separately from the other three objectives. This objective may be pursued in several ways.

In considering opportunities for collaborative research, it is useful to include the Bank's country and sector work program, which is several times larger than what we define as research. A number of studies now carried out in connection with country economic work on income distribution, employment, exports, migration, etc., would constitute suitable topics for research contracts or collaborative research with local institutions. This idea is now being discussed with regional chief economists and seems promising. In some ways it provides a wider basis for collaboration than the research financed under RPOs.

(i) RAPIDE
Scratched out
(ii) not
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(iii) Duloy
distinction not incorporated. Perhaps will be done by Malinvaud
Not in draft
Except for research
ambulatory
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In turn, research projects may be devised so as to include a time allocation for in-project training as well as a budget allocation to cover the costs of bringing local researchers to Washington for limited periods. The latter would be particularly useful in cases when the acquisition of technical expertise would permit the future application of the particular technique in the country concerned, as well as in comparative projects where the country participants often do not get the full benefit of the analysis leading to the final synthesis.

Agreed
in 3.14

The establishment of regional units for research applications, suggested below, would provide further opportunities for collaborative research with developing country institutes. Given the regional character of this research, it would also permit establishing regular contacts with the institutes in question and ensure the geographical diversification of collaborative research.

5.07
"Bank should
bear the cost,
not out of
the research
budget."
Regional units not explicitly mentioned, other than via two staff

These modes of collaboration pre-suppose the existence of research capacity in developing countries, however rudimentary this may be. There are several countries in Africa and in Asia, however, where such capacity does not exist and institution building independent of research projects would be necessary. As noted in the draft report, this does not seem to be an appropriate task for the Bank to undertake. (A number of other alternatives are outlined in a paper by Paul Streeten.)

Residual Supplier or Comparative Advantage in Research (pp. 16-17)

The principles of residual supplier and comparative advantage in research both have their advantages and disadvantages and neither of the two may alone determine the Bank's research strategy. The residual supplier principle is at the same time too narrow and too broad. It is too narrow inasmuch as it would preclude the Bank from engaging in research on topics where research is done elsewhere, even though such research may have important external effects for Bank lending and policy work. It is too broad inasmuch as it might saddle the Bank with responsibility for carrying out research that is not undertaken elsewhere, even though this may not correspond to its comparative advantage.

Limitations to the residual supplier concept are illustrated by the Bank's work on marginal cost pricing and on trade policies, both of which are discussed in the reports of the specialized panels. Work on marginal cost pricing has been carried out at a number of institutions, yet it is doubtful that its practical application in Bank lending and policy advice to developing countries would have been possible without in-house research. Also, while several parallel studies have been carried out on trade policy, research at

This narrative
not included.
Also
externalities
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the Bank has helped to transform our general policy stance and, in some cases, has led to policy advice to individual governments.

If it is given too much weight, the application of the residual supplier principle is likely to be at the expense of research in which the Bank has established a comparative advantage. And, the relevance of the principle of comparative advantage is reconfirmed if the Bank's research objectives are redefined to include the task of providing for the needs of the development community at large. At the same time, rather than considering research undertaken elsewhere as a datum, the Bank may attempt to influence the directions it takes.

The Bank may have some influence on research carried out under the auspices of other institutions such as the Ford Foundation and AID, and collaboration with these institutions may be usefully extended in the future. Also, the Bank may take part in consortia that finance large research projects in areas where it does not have a comparative advantage. Apart from its participation in the Consultative Group on International Agricultural Research, the Bank has contributed to the financing of the United Nations (Kravis) research project on purchasing power parities, and it may also participate in the financing of data collection efforts. Finally, reference is made to the Industrial Development and Trade Research Panel's recommendation, that the Bank should suggest to developed country governments that they sponsor research on the problems of adjustment to manufactured imports from developing countries, where the Bank again does not have a comparative advantage.

*This is
included
in
3-18*

The strict application of the comparative advantage principle would preclude the Bank from carrying out research on topics of vital interest that are not subject to research elsewhere. One may then suggest the modified application of the principle of comparative advantage that would provide for a trade-off at the margin between research in which the Bank has a comparative advantage and research that is necessary for Bank operations but is neither carried out spontaneously elsewhere nor can the Bank induce other institutions to do so.

As regards the Bank's comparative advantage in various areas, reference is made to the list presented in the report of the Industrial Development and Trade Research which is reproduced below:

- ✓ (a) The research of the Bank should concentrate on fields where particularly competent researchers are available within the Bank, or (in a longer perspective) can be hired by the Bank.
- ✓ (b) Bank research should exploit the skills and information that are acquired within the Bank in its operational activities as a lender and adviser.
- ✓ (c) The Bank should concentrate on large projects and projects where a continuity of research effort is important.
- ✓ (d) The Bank should exploit its information and understanding about facts and problems in a large number of countries to make comparative studies of national economies.
- x (e) The Bank should try to produce statistical data and other information, where such information is more readily (cheaply) available to the Bank than to other organizations. (It is a somewhat controversial issue if this should be called "research".)

Not included

Finally, it may be added that the Bank has a comparative advantage in areas where in-house research can lead to applications in project work or can affect the Bank's policy work. One should also include under this heading the generation of ideas through research that subsequently enter into Bank thinking.

Organization of Research (pp. 18-20)

The present fragmented organization dates from 1972, when the Bank was reorganized. Before that, research was concentrated in a single Economics Department, which suffered from the disadvantages mentioned in paragraph 4.10. Instead of a return to the previous principle of centralization--with a group of researchers more than double that in 1971--one may wish to consider how the present organization of research can be improved.

While it is difficult for the Panel to enter deeply into organizational questions, it may wish to suggest some criteria for improving the present organization. Among them might be:

✓ O.K.

(i) The need for a minimum critical mass, which is now lacking in a number of areas. This is stressed by several of the specialized panels.

Not Addressed in 4.10

(ii) The need to balance the requirement of continuity of research by individuals against operational involvement. Here the analogy might be made to an academic researcher who can do effective research and spend half his time on teaching but probably not much more. The Bank has a number of researchers who devote too little time to research to be effective.

Not a Addressed

(iii) The need for a balance between in-house capacity and consultants. (Several panels have useful comments on this subject.)

At the same time, the establishment of Steering Groups would improve the coordination of research and these groups would have an overview of research carried out in a general subject area by several units. Furthermore, one may attempt to better delineate the responsibilities of individual units within a particular area.

Not
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What
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of this
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corrections
are made.

A clearer division of labor may apply to research topics as well as to the mode of carrying out research. Thus, the DRC may undertake large, multi-annual research projects, engage in the development of new techniques, and experiment in new research areas. At the same time, in a particular field, such as agriculture and rural development, it may continue to have responsibility for model building efforts, with the Rural Development Division of the Development Economics Department and, in particular, the Agriculture and Rural Development Department, carrying out research that has closer operational and policy implications. (On this point, see the recommendations of the Panel on Research in Agriculture and Rural Development.)

What is basis for product differentiation?

This organizational set-up represents an application of the principle of comparative advantage to the organization of research in the Bank inasmuch as it makes use of the capabilities of research staff in different units and provides a framework in which interaction between researchers and operational staff can be assured. Such interaction would be reduced if a large research department were established, collecting elements from various research units. A large research department is likely to develop a life of its own,

independent of operational and policy concerns; it would limit the possibilities of exploiting the Bank's comparative advantage in research projects that utilize its experience and lead to operational applications; and it is likely to run counter to the objectives of making research more relevant to Bank operations.

At the same time, the application of the principle of comparative advantage among individuals would suggest greater specialization within individual units and the establishment of separate research units in all departments that carry out research. However, a complete separation of research from the operational support and policy functions would not be desirable. This is because of the need for researchers to better understand the issues the Bank is concerned with and because they have a role to play in the application of research.

Generation of the Research Program (pp. 21-23)

The internal review of Bank research has concluded that, on the whole, research projects have been generated by the producers rather than the users of research and that research has not been sufficiently oriented towards Bank operations. Nor have research projects in particular areas been generally part of a coordinated research program.

The establishment of Steering Groups in individual research areas would aim at developing research programs with the participation of the producers and the users of research. Such a Steering Group was established last May in the industry and trade area, with the participation of DPS, CPS, IFC and the Regional Offices. The Group has recently produced its draft report that makes proposals on research for the next several years, with additional recommendations on staff levels in research and in research applications. (A copy of the report has been provided to the Panel.)

The research programs of the Steering Groups, once established, would be reviewed by the Research Committee. It would further be desirable to grant the Steering Groups authority for approving research projects that are part of an agreed-upon program and do not exceed predetermined budgetary limits. This will enable the Research Committee to devote more time and effort to setting priorities among research areas and to consider general issues relating to research, such as research application and dissemination.

Whereas the Steering Groups would develop research programs in particular areas, approve research projects below certain limits, and advise the Research Committee on projects above these limits, it would further be desirable to help operational departments to translate their research ideas into research projects. While, in cases where specialized knowledge does not exist at the Bank, consultants may join research staff in the preparation of the research project, the use of consultants for this purpose will not generally provide a solution, given their unfamiliarity with Bank operations and with the needs of the operational departments. *Ombudsman* Alternative procedures would involve Bank researchers developing research projects jointly with operational departments, assisting the departments in the formulation of their own research proposals, and generating research based on ideas received from operational departments.

There are several recent cases where joint projects have been developed by research units and operational departments, and where operational departments have received assistance from researchers in formulating proposals for a research project. While such initiatives should be encouraged, it should be recognized that providing such assistance is a time-consuming activity. The same observation applies to researchers collecting research ideas from operational departments, although in some respects the Steering Groups may serve as a conduit.

Involvement of Other Social Scientists (p. 24)

Peter Wright's enclosed note (Appendix 2) indicates the extent of involvement of social scientists other than economists in the Bank's research and operational work. It also raises questions as to the contributions general sociologists (as against sociologists who are familiar with local conditions) and political scientists can make to the Bank's operational and research work, in view of the strong academic traditions of these disciplines and the restricted scope they offer for quantification and generalization. These considerations may in part explain the lack of success of most interdisciplinary research efforts involving economists, sociologists and other social scientists.

Research Applications and Dissemination (pp. 25-27)

As the research program has come of age, there are increasing demands for research applications. Yet, the research budget does not provide for applications, nor is this part of staff functions either in DPS and CPS or in the Regional Offices. The question arises, then, how one can ensure the application of research results.

Two possible alternatives suggest themselves: establishing central units with responsibility for research applications or locating such units in the Regional Offices. The former alternative will be appropriate in cases where research applications involve the use of specialized techniques, such as industrial programming and the extent of demand does not permit locating specialists in each Regional Office. In turn, regional units may carry out a variety of more routine research applications. Such units would be provided with staff and a budget for research applications to ensure that resources are not diverted to other uses.

It should be recognized that the described procedure for research applications involves a considerable cost in terms of manpower and financial resources. And, to the cost of establishing and maintaining the proposed units, one should add the time input of researchers in DPS and CPS who will need to be consulted on research applications.

However, the costs involved are likely to be much exceeded by the benefits of research applications for the Bank's work. Moreover, the regional units can take on the additional function of participating in the research dissemination effort. In particular, they may be involved in the organization of seminars for operational staff in the regions on selected topics which are of interest to the region concerned. Such seminars have had considerable success in the South Asia region, where these were held away from headquarters so as to ensure concentration on the chosen topics. At the same time, it should be recognized that the seminars would require considerable time input on the part of senior researchers who would need to acquire some familiarity with the problems facing the region.

The time of senior researchers would also be involved in writing or reviewing "state of the art" papers, for which there is demand on the part of regional economists. In replying to a survey, regional economists have expressed a strong preference for having such papers written by Bank staff rather than by consultants, so as to permit focusing the papers on the needs of the Bank. It has further been suggested that the authors of these papers not only survey the published literature but also establish generalizations and methodology applicable in Bank economic work. Finally, it has been proposed to follow up on the state-of-art papers by Bank-wide seminars and workshops that, too, require the time of the researchers.

The objective of the dissemination of research results would further be served by the preparation of brief reports on the findings of individual research projects. Such reports, prepared at several stages of the project, would give emphasis to the operational relevance of the findings and indicate possible applications in the Bank's work.

It is apparent that, just like application, dissemination would require considerable staff resources. In order to ensure the efficient use of resources, the Research Advisor may be given the task of preparing an annual program of dissemination, with an indication of the time requirements for research staff necessary to carry out the program. This program would need to be coordinated with staff training that is presently carried out. (Cf. the attached note by Peter Wright (Appendix 3).)

March 2, 1979

Agriculturists <

New draft with ours.

June 6th - 8th

Korean Embassy

Give RSD
May 15th
draft.

March 7th

- June 5th

Out within 2-3 weeks

Get by April 1

Comments back April 20

Redraft by May 15th for Bank ~~drafts~~ circulation.

Redraft by Panel members esp LDC
Research centers.

~~Att~~ Written comments only.

~~Discussion with individual members on priorities~~

Suggest sending both drafts to
Chair of Spec. Panels.

With a thing at back giving
recommendations.

April 1 draft.

1. Past and present flows of resource into agriculture
2. Past and current ~~resource~~ flows for rural development
3. Income structure; terms of trade, interrelationships
4. Ag. growth and rural poverty.

Regional devolution of discussion of agriculture.

RAPARD - fine shipping list.
- 10-12 man years.
Increase resources

Discussion of Agriculture

Item:

~~Small scale industry + rural industry~~
Aboyade report.

Key

Conclusions

1. Until now primary activities
Objectives have been price forecasts,
for BOP analysis + investment projects.
2. Panel focusing on improved forecasting technology
" data.

Instead of focusing on short term forecasts
panel recommends Bank looking at
more development issues.

Cost analysis, supply analysis
Comparative advantage in ~~selected~~ commodities.
Case studies of sugar, dairy products.
UNCTAD issues.

Lack of consistent data on minerals.
Expansion of commodity coverage.
Processing of raw materials.

Issues

Has the support of skilled resources
- Overfishing.

List (2.04, 5)

2.04 Project work of Bank would be substantially improved if the gap in knowledge could be remedied.

- Why we think important.

HSC

Dilemma

(i) Shouldn't be comprehensive

(ii) Shouldn't second guess panels

(iii) Shouldn't undermine

Lewis

But it would agenda, not Bank agenda

Clenny

Not necessary to have detailed comments on Bank panels. Illustrative comments.
Assess importance of field of Soc. Sc.

Maluward

Need section

HTC

- Could start 'Africa' World Research Agenda
- On to Bank's research needs
- Then to Bank Research

Lamin

At some stage it was proposed to include six other cities' recommendations.

Nassir

List of recommendations - what should our research priorities.

HTC

⊗
Wd. would be feasible to have a section on 'stylistic' issue -
Synthesis of several recommendations.

HTC

Simon Bela & I could synthesize general comments of six SRAPs.

Not worth making detailed list of detailed

Areas not covered
by SRAPS

There should be in Chap - II a ^{list} substantial flow

Basis for designing a Bank Research - Framework

(i) World needs

(ii) Principles guiding Bank Research

Broader framework

How that Bank might.

Chapter on LDC instrs.

Law

Then you throw out bubble design. Arrive at Bank at end.

Hassad

Main thrust of Bank Research

Clarify 2.14 + 2.05

Investor

Select Bank for Chapter II,

Sea

Is distinction between projects & policies tenable

LHC

Sell

State it as a spectrum not as a dichotomy.
By education, inter-industry.

Abeyade

Six have to discuss objectives, things.

i. after 'spectrum'

Collaboration with LSC
Chapter 45

Course Data Collection
(ii) Data Management & Retrieval

'Other Research'

5 way split.

- (i) External Research
- (ii) Departmental Research: who does what it is
- (iii) ESU. Much of which includes applied + original research. Country specific.
- (iv) CGIAR; other outside bodies (schistosomiasis) Tropical diseases.
- (v) Loans + credits: Part of collaboration. Shd. say ~~done through~~ done through loan components.
Para. under collaboration

Report about 1st three

Steering groups shd. take into acf.

Para. on coherent concept of research which takes into account of loans + credits, ESU

3.11.01

See proposal
on data gathering

Income Distribution Data

Levi:

RAPIDE: Time Series is the problem - Panel
Panel should endorse Alternative.
Relevant

Bea: What is the relationship between
Alternative Rec. + RAPIDE, being into.

Defer discussion of RAPIDE.

Maintenance - redraft of data collection

Collaboration: p. 13

(i) Helen Hughes pt. - question of capacity
not quality

(ii) - Inv. finance through foundations work of individual
scholars.

(iii) - ~~Do~~ Bring scholars here

- Regional staff to facilitate cooperation

- Collaborating with individual, ^{scholars} as
consultants.

(iv) Need to face quality loss for affirmative
action.

Hewitt: Don't compromise on quality,
Distinguish between collaboration of technique,
by ca. of instn.

Paragraphs by individuals, ^{panel members} or
collaboration

① Bring in MBCs para. from Chapter VI. (6.09) into
3.16.

② Endorsement by Bank of proposals.

Could have collaborating research who manage
continuity research.

3.18 For negative Could involve, eg. OECD.
1st prototype -

~~6.09~~

Research leadership for stimulating research
could come from any body.

3.19 Does the Bank have an inherent comparative advantage. Or is it dynamic.

Lewis Independent c.a. is that derived from projects side

Biggest possibility + missed opportunity
Happy to see § 3.19 rewritten to reflect project

WBC

Residual supplier too narrow.

Getting good researchers requires stability.
Mainstream needs

→
p 4 & Batassa/Cheney Comp Advantage
a, b, c. are endorsed.

Lewis Still differ from Cheney in importance of projects.

→
Analytix now has ignored sector analysis + project
+ to exploit the field information it gets
(cf. Cheney/Batassa (b)).

Appendix

Bell: Suggest deletion

Convert appendix (w/o list) into para. 2-03.
Refer to UN Conference on Science + Tech. for development.

Chapter VI

6.09

- World Caps

- Principles

- Principles

- Gain thrust

- Past quality, comp. advantage.

DATA COLLECTION AND MANAGEMENT:
A NOTE FOR GRAP

Data Collection

In making recommendations on data collection, it is essential that GRAP should distinguish among the following categories:

- (i) Data collection as a continuing routine statistical operation in meeting the Bank's responsibility within the network of international institutions. A prime example is the Debt Reporting System.
- (ii) Data collected in the process of the Bank's operations, both country economic work and in relation to lending projects, including design, appraisal, monitoring and evaluation.
- (iii) Data collection on a pilot basis to demonstrate the usefulness of particular data sets with a view to their being collected subsequently on a routine basis, whether by the Bank or by other institutions.
- (iv) Data collection in the context of Bank research projects.

It is evident that the primary purpose of the first two categories is not research, although the data may (and do) prove valuable for research purposes. These categories are very large relative to the last two of the listed group. For example, the monitoring and evaluation costs (which include a large component of data collection) amount to about \$15 million per annum for agriculture and rural development investment projects alone in recent years. Decisions on what data are to be collected in these categories, how they are to be used, and how disseminated (if at all) are determined by operational requirements, and by a judgment by the Bank of its role and responsibilities in the statistical field and of its obligations to its member countries.

The third category--collections on a pilot basis with a view to their subsequently being made routinely--is not really a research task. However, it may well be a sequel to research which demonstrates the usefulness of certain types of data and the deficiencies in existing collections. The Bank has not entered this field up to now. Presumably RAPIDE had this third category in mind in its recommendations on income distribution and employment data, although this is by no means clear in its report. The Bank is currently giving serious consideration to taking an initiative in this area.

Finally, the fourth category concerns data collected explicitly for research purposes. Given the size of the research budget, the volume of

such data is necessarily small, although there are instances in which research has piggy-backed on other activities (UNDP and Bank lending projects) to collect data. It is difficult to generalize in this area--ultimately the judgment on whether new primary data are required in a research project can only be made in the context of the particular project.

Data Management

The Bank has a major problem in the area of data management, defined as the creation of an institutional memory for its data which is maintained, documented, and accessible. Substantial progress has been made in recent years, but a great deal remains to be done. Seen in this context, data management in the case of Bank research (and particularly the retention of survey data sets) is only part of a much broader problem.

The Panel might want to identify the nature of the problem insofar as it relates to research and to note that its solution is only likely to be found in the broader context.

John H. Duloy
February 28, 1979

BANK RESEARCH AND THE SOCIAL SCIENCES

Note for External Research Panel

1. The perception that Bank research is dominated by economists is correct. There are, nevertheless, a number of ongoing research projects which depend to some degree on contributions from other branches of the social sciences, e.g., Narangwal population and nutrition (671-38), feeder roads in Ethiopia (670-71 and Madagascar (671-14), management of public enterprises (671-71), Bogota city study (671-47), rural income distribution in Senegal (671-57), fertility studies in Sri Lanka and South India (671-70) and Egypt (671-81) and various studies on education. The research team in Senegal is headed by a Professor of Sociology.
2. There are only five sociologists/anthropologists employed by the Bank as such -- one each in the Agricultural and Rural Development, Tourism Projects and Education Projects Departments, one in education in East Africa and one in the division concerned with transmigration in Indonesia. However, there are a fair number of broad-gauge economists in the Bank, particularly in the Regions, whose studies have extended into other disciplines -- sociology, politics, public affairs and so forth. The staff of the Population Projects Department, in addition to economists and technicians, includes a mixed bag of public health experts, demographers, communications specialists and at least one political scientist. A variety of social science disciplines is also represented in the Bank's educational staff. The Bank has not yet developed a complete inventory of staff skills, but a survey of recent recruits to the Young Professional Program shows that, among the last 100 entrants, seven had graduate or post-graduate qualifications in international studies, ten in politics and government and three in sociology.
3. The Agricultural and Rural Development Department has organized a series of 12 Bank-wide sociological workshops over the past two years. These have been well attended by Bank staff and have focussed on sociological factors affecting Bank projects in each of the agricultural sub-sectors (irrigation, land settlement, livestock, credit, etc.). The Department also maintains a roster of consultant sociologists and anthropologists classified by function and geographical area. The use of such consultants in the Bank's project work has been increasing. For example, in agriculture alone consultants in sociology were employed by the Bank 46 times over the two fiscal years 1977 and 1978, as compared with 16 such engagements in the two preceding years. A Staff Working Paper on the monitoring and evaluation of agricultural extension projects was produced by a sociologist in the Agriculture and Rural Development Department in December 1977 and has had the largest circulation of any paper in this series during the past two years. A similar paper is being prepared on the basis of the Bank's experience with the PIDER rural development program in Mexico.

4. Other departments which make considerable use of local sociologists in their work are Education, Population, Tourism and Urban Projects. There is some scepticism in the Bank about the contributions that general sociologists or political scientists can make to the Bank's work, whether in operations or research, in view of the strong academic traditions of these disciplines and the restricted scope which they offer for quantification and generalisation. Specialized members of such disciplines would have limited possibilities of career development in the Bank and would be liable to feel professionally isolated. It may be better therefore to rely mainly on the sensitization of existing Programs and Projects staff to sociological and political issues and on the use of consultants to supply specialized knowledge and expertise as required. This having been said, the possibility of recruiting additional sociologists is not excluded, and there is undoubtedly scope to extend the range of training offered to staff in sociology and related disciplines, as well as in institutional economics and public administration.

E. Peter Wright
Development Policy Staff
March 2, 1979

MAINTENANCE AND DEVELOPMENT OF ECONOMISTS' SKILLS

Note for External Research Panel

1. Training is provided for economists in the Bank through in-house workshops and seminars, attendance at outside conferences and professional meetings, occasional participation in EDI courses, the program for part-time study, leave without pay for full-time study, study leave and sabbaticals. Details of these various programs are set out in the Bank's training manual, copies of which are distributed to all staff members.

2. From mid-1977 to date roughly 130 Bank economists have attended internal training courses on subjects ranging from linear programming to population and institution-building. Six sabbaticals are granted annually, and this is the one type of external training for which demand regularly exceeds supply. Three-quarters of the sabbaticals approved in recent years have been for economists. Conditions for leave without pay for study and for study leave (limited to six months) are less attractive. In principle, the Bank is ready to consider up to 10 staff members a year for each of these programs, but numbers applying are generally fewer, and only a minority of these have been economists (one in three for leave without pay, one in six for study leave).

3. With respect to rotational assignments, DPS acts in effect as a recruiting agent for other parts of the Bank, and every year several economists are reassigned from DPS to the Regional Offices. The reverse flow of economists from the Regions to DPS is smaller, though still significant, with the Policy Planning and Program Review Department as the principal recipient. However, few of the research economists in DRC and DED have worked in the Regions.

4. Opportunities exist for Bank economists to broaden their experience through external service either on secondment to outside institutions or on leave without pay. For example, two senior economists who have been involved in Bank research will shortly be returning to their home country (India) on leave without pay to take up government positions. In all, 50-60 Bank staff members are presently on external service, and over one-third of these are economists. Assignment to Bank resident missions overseas is another avenue of career development open to economists on the staff. There are approximately 135 such positions, of which roughly one quarter are presently filled by economists.

5. Country economic and sector missions offer an important training ground for research economists as well as for economists in the Regions and help to promote the cross-fertilisation of skills within the Bank. During the current fiscal year, for example, over half the economists in DED and DRC are participating in such missions.

E. Peter Wright
Development Policy Staff
March 2, 1979

OFFICE MEMORANDUM

TO: Members of the General Research Advisory Panel

DATE: March 7, 1979

FROM: Benjamin B. King *BBK*SUBJECT: Draft Report

1. Paragraphs 4.03/04 are factually incorrect. DED has three current research projects, to each of which three professional staff members are assigned:

RPO 671-47	City Study
RPO 671-59	Small-Scale Enterprises
RPO 671-84	Wage and Employment Trends

2. While some of these professionals have other commitments, the bulk of their time is devoted to the projects concerned or will be (671-84 is a brand-new project). In the case of the City Study, the three members are virtually full-time and one other staff member has participated part-time. The City Study has, in addition, several consultants and works in collaboration with a research organization in Bogota (CCRP) which itself utilizes several local consultants.

3. These three projects absorb 25% of DED's staff (other than Division Chiefs, etc.). We regard the generation of projects with this kind of "critical mass" as an objective to be pursued still further and, as other current projects in DED are completed, intend that still more projects will have this organizational form (see my memorandum on Work Programs dated January 5, 1979, paras. 8 and 9).

cc: Messrs. Chenery
Balassa

OFFICE MEMORANDUM

TO: General Research Advisory Panel

FROM: Bela Balassa, VPD

SUBJECT: The Size of the Bank's Research Program

DATE: March 6, 1979.

1. In the following I provide a short summary of the recommendations made by the specialized panels as regards the size of the Bank's research program in particular areas. As is apparent, some of the recommendations have been formulated in numerical terms; others call for expansion without providing specific figures; and again others have been inferred from the statements made on research priorities.
2. The panels on Public Utilities (Energy, Water and Telecommunications) and on Transportation recommend a substantial increase in the Bank's research effort in the areas they have reviewed. The Public Utilities panel suggests an immediate increase in staff time devoted to research from 97 to 250 manweeks (p. 23). The Transportation panel recommends gradual increases in staff time devoted to research from 68 man-months to 110 man-months and in consultant time from 60 man-months to 94 man-months between FY78 to FY83 (p. 41).
3. Substantial increases in Bank research are proposed also by the panels on Education and on Population. The former "urge/s/" a steady increase over several years in the scale of Bank-supported research on education ..." (p. 29). And, according to the latter, "the research support for population is disproportionately low -- especially in comparison with the Bank's disbursements to the Consultative Group for International Agricultural Research averaging \$2.8 million annually in the past few years. If that sort of funding can be made available for that important field, the Panel considers that the Bank should be able to do better by this important field."
4. In the remaining areas, the Industrialization and Trade panel proposes "to increase the number of scholars of the Bank in this field with at least a handful of competent persons" (p. 28), further stating the need for increased research applications. In turn, although the Agriculture and Rural Development panel has not made recommendations as regards the size of the research effort, the listing of "possible topics of new and expanded areas of research" (p. 38) point to a potentially large expansion. Finally, the RAPIDE panel speaks of the need to "better concentrate the efforts of the small number of staff in the Division, and better to coordinate the research under way in other divisions" in employment (p. 17) while its recommendations for four research areas in income distribution (pp. 12-14) would necessitate increased research efforts in this general area.

cc: Messrs. Baum, Chenery, Duloy, Holsen, van der Tak, Vergin, Bery

BBalassa:nc

SUGGESTED RESEARCH PRIORITIES

Bela Balassa

Agricultural and Rural Development

- Adoption of new technology
- Effects of taxes, subsidies, and other incentives
- Strategies for reaching the rural poor
- Indirect effects of rural development

Education

- Production function of education
- Productivity of education

Employment

- Operation of labor markets
- Direct and indirect employment effect of projects

Income Distribution

- *Country studies of distribution over time*
- Income-distributional consequences of alternative development strategies
- Effectiveness of the basic needs approach in increasing the welfare of the poor

Industry

- Factor market distortions
- Technology transfer
- Small-scale industry

International Trade

- Changing trade patterns and inter-LDC trade
- Industrial growth path and trade policies in non-industrial countries

Population

- Population growth and socio-economic development

Public Utilities

- Rural electrification
- ✓ - Energy pricing
- Issues relating to water supply and sewerage

Transportation

- Comparative costs of road and other modes of transportation
- Rural transport needs and feeder roads
- Ocean shipping potential of developing countries

OFFICE MEMORANDUM

TO: Those Listed Below

DATE: March 6, 1979

FROM: Suman Bery, VPP *SKB*

SUBJECT: "Readers' Guide" to External Research Panel Reports

As you know, the (final and draft) reports of the various Research Advisory Panels refer to a number of topics of general interest to the work of the General Panel. The attached table provides a "readers guide" to the location of these topics in the various reports.

Distribution

Members of the General Research Advisory Panel
Messrs. B. Balassa
H. Chenery
H. van der Tak

SKBery:lt

FUNCTIONAL GUIDE TO REPORTS OF SPECIALIZED RESEARCH ADVISORY PANELS

<u>Topic</u>	<u>GRAP (2/79)</u>	<u>Agriculture (12/78)</u>	<u>EWT (2/79)</u>	<u>Income Distribution (Final)</u>	<u>Industrial Development (2/79)</u>	<u>Transport (3/79)</u>
Operational Relevance	22	34-35	9	3,4	2.13 - 2.15	8
Overall Quality	-	10-11 34-35	8-9	App. B, p.2 App. C, p.1,2	p.1, 10-16	7-8
Research Priorities and Scale	-	13-16 38-42	11-20, Annex 2	12-15	2.17 - 2.28	11-26, 36-43
Research Organization	18-23	24-29	4, 21-22	21, 22	1.15 - 1.16 1.19 - 1.24	-
Dissemination and Application	25-27	30-33	10-11	17-21	1.14 - 1.18	31 33-35
Staff Development and Training	25	-	-	20-21	17-18	31
Role of Non-Economists	24		-	-	13	22-23
Cooperative Research/ LDC Instl. Bldg.	13-16	20-23 28-29	20-21	8-10	9 - 10	10, 33 - 34
Data	8-12	-	18-19	6, 10-12	8-10	-
Comparative Advantage and Objectives	16-17	13-19, 35	-	2, 5	1.2 - 1.10	30-32

OFFICE MEMORANDUM

TO: General Research Advisory Panel

DATE: March 6, 1979.

FROM: Bela Balassa, VPD

SUBJECT: Bank Publications

1. The enclosed list, dated January 2, 1979, provides a partial indication of the output of Bank research. It includes books and contributions to the Occasional Papers series at various stages of the publication process while excluding journal articles, Bank working papers and miscellaneous reports. Since the inception of the Bank's research program seven years ago, 60 journal articles have been included in the World Bank Reprint Series and 190 papers in the Working Paper Series.

2. Enclosed is also a November 1977 list of books and occasional papers where the items appearing on the 1979 list have been put in parenthesis. The comparison of the two lists shows the rapid expansion of the Bank's publication effort. This fact reflects the completion of an increasing number of research projects as the Bank's research program has matured.

cc: Messrs. Baum, Chenery, Duloy, Holsen, van der Tak, Vergin, Bery, King

Enclosure
BBalassa:nc

Prospective World Bank Books
Estimated Schedule as of January 2, 1979

Information and Public Affairs Department
Office of Professional and Technical Publications
Page One

Working Title	Author(s)	Probable Publisher	Estimated Pages in Type	Target to Printer (to WB edit) <u>1/</u>
A. <u>Research and policy books approved</u>				
1. Inequality and Poverty in Malaysia: Measurement and Decomposition	✓ Anand	OUP	228	? <u>2/</u>
2. Port Pricing and Investment Policy for Developing Countries	Bennathan and Walters	OUP	224	2/79*
3. Structural Change and Development Policy	Chenery	OUP	464*	3/79
4. Planning of Investment Programs in the Fertilizer Industry (PIP Vol. II)	Choksi, Meeraus, and Stoutjesdijk	JHUP	320	(8/78)
5. The Social and Cultural Effects of Tourism (title undecided)*	de Kadt (ed.)	OUP	304	3/79
6. Remote Sensing Manual	Drewes	JHUP	352	(5/79)
7. Growth with Equity: The Taiwan Case	Fei, Ranis, and Kuo	OUP	228	(6/78)
8. Income Inequality and Poverty: Methods of Estimation and Policy Applications	Kakwani	OUP	320	4/79
9. Planning for Industrial Investment Programs: A Methodology (PIP Vol. I)	Kendrick and Stoutjesdijk	JHUP	144	Due out of bindery 1/19/79

Prospective World Bank Books
 Estimated Schedule as of January 2, 1979

Information and Public Affairs Department
 Office of Professional and Technical Publications
 Page Two

Working Title	Author(s)	Probable Publisher	Estimated Pages in Type	Target to Printer (to WB edit) <u>1/</u>
10. Urban Labor Markets in Malaysia	Mazumdar	OUP	320	? <u>2/</u>
11. Public Expenditure in Malaysia: Who Benefits and Why	Meerman	OUP	392	2/79
12. Industrialization, Technology, and Employment in the People's Republic of China	Rawski	OUP	176	(2/79)*
13. Urban and Spatial Development in Mexico	Scott and Keare	JHUP	?	? <u>2/</u>
14. Who Benefits from Government Expenditure? A Case Study of Colombia	Selowsky	OUP	192	4/79
15. State Manufacturing Enterprise in a Mixed Economy: The Turkish Case	Walstedt	JHUP	192	(9/78)
16. India Exports	Wolf and others	OUP	240	? <u>2/</u>
B. <u>Country economic reports approved</u>				
1. Malaysia: Economic Performance and Long-Term Issues	Hasan, Bussink, and Young	JHUP	400	? <u>2/</u>
2. Korea: Policy Issues for Long-Term Development	Hasan, Rao, and others	JHUP	552	2/78

Working Title	Author(s)	Probable Publisher	Estimated Pages in Type	Target to Printer (to WB edit) <u>1/</u>
3. Arab Republic of Egypt: Economic Management in a Period of Transition	Ikram and others	JHUP	900	? <u>2/</u>
4. Yugoslavia: Self-Management Socialism and the Challenges of Development	Schrenk and others	JHUP	512	(9/78)
C. Occasional papers approved				
1. Confronting Urban Malnutrition	Austin	JHUP	?	(1/79)*
2. A Model of an Agricultural Household: Theory and Evidence	Barnum and Squire	JHUP	96	(9/78)
3. Budgets in Farm Income and Agricultural Project Analysis	Brown	JHUP	168	(1/79)*
4. Fertility and Education: What Do We Know?	Cochrane	JHUP	176	1/79
5. The World Rubber Economy: Structure, Changes, and Prospects	Grilli and others	JHUP	128	(1/79)*
6. Urban Economic and Planning Models	Mohan	JHUP	192	1/79*
7. The Economics of Power System Reliability: Theory and Case Study	Munasinghe	JHUP	208	(9/78)

Working Title

Author(s)

Publisher

Status

D. Books being vetted by the Editorial Subcommittee

- | | |
|---|-------------------------------|
| 1. Technology Choice in Developing Countries: The Impact of Differences in Factor Costs | Amsalem |
| 2. Macroeconomic Models of Brazil | Bacha and Taylor |
| 3. Development Strategies in Semi-Industrial Countries | Balassa and others |
| 4. Agricultural Models of Mexico | Bassoco and others |
| 5. Essays in Industrial Development Policy | Cody, Hughes, and Wall (eds.) |
| 6. Planning Models for Investment Policy | De Melo, Dervis, and Robinson |
| 7. Farmer Education and Farm Efficiency | Jamison and Lau |
| 8. Afghanistan: The Journey to Economic Development | Kavalsky and others |
| 9. Thailand: Toward a Development Strategy of Full Participation | Lim and others |
| 10. Distance Teaching for Formal Education: What the Projects Tell Us about Costs and Effects | Perraton (ed.) |
| 11. The Impact of Social Security Institutions on Resource Mobilization and Allocation | Saito and Shome |

Working Title	Author(s)	Publisher	Status
12. Industrial Investment Analysis under Increasing Returns	Stoutjesdijk and Westphal		
13. Syrian Arab Republic: Development Prospects and Policies	Zaman and others		
14. Manpower Requirements	Zymelman		
<u>e. Books in translation</u>			
1. Economic Analysis of Projects <u>3/</u>	Squire and van der Tak	Livros Tecnicos e Cientificos Editora	Being translated by publisher
2. Patterns of Development, 1950-1970 <u>3/</u>	Chenery and Syrquin	Livraria Pioneira	Being translated by publisher
3. Redistribution with Growth <u>3/</u>	Chenery and others	Livraria Pioneira	Being translated by publisher
4. The Economic Evaluation of Vocational Training Programs <u>3/</u>	Zymelman	Livraria Pioneira	Being translated by publisher
5. The Tropics and Economic Development <u>3/</u>	Kamarck	Livraria Pioneira	Being translated by publisher
6. L'Economie de l'Electricité	Turvey and Anderson	Economica	Publication estimated 1/79
7. Electricity Economics <u>3/</u>	Turvey and Anderson	Editorial Tecnos	Being translated by Bank
8. Veinticinco años de desarrollo económico: 1950 a 1975	Morawetz	Editorial Tecnos	Sent to Madrid 11/78

*Change in status or other details since the schedule of the preceding month.
 #New proposal since the schedule of the preceding month.

1. In cases in which a "to WB edit" is given, add from ten months to two years for camera target, depending on length and complexity of the manuscript.
2. Aut still revising; cannot ascertain when ready for editing.
3. Title in translation not yet known.

F. Published in fiscal 1979 through December 29, 1978

Squire-van der Tak, *Analisi dei progetti di investimento*. July, Marsilio Editori.
den Tuinder and others, *Ivory Coast: The Challenge of Success*. August, Hopkins.
Bosson-Varon, *L'Industrie Minière dans le Tiers Monde*. September, Economica.
Morawetz, *Vingt-cinq années de développement économique, 1950 à 1975*. September, Economica.
Chernick and others, *The Commonwealth Caribbean: The Integration Experience*. November, Hopkins.
Singh y otros, *Café, Té y Cacao: Perspectivas del mercado y financiamiento para el desarrollo*. November, Tecnos.
Bosson-Varon, *La industria minera y los países en desarrollo*. November, Tecnos.
Grimes, *Viviendas para familias urbanas debajos ingresos: Aspectos económicos y de política en el mundo en desarrollo*. November, Tecnos.

G. Second or subsequent printings during fiscal 1979

Bosson-Varon, *The Mining Industry and the Developing Countries*. Second printing. September.
Morawetz, *Twenty-five Years of Economic Development*. Second printing. September.
Squire-van der Tak, *Economic Analysis of Projects*. Third printing. December.
Walters, *The Economics of Road-User Charges*. Third printing. December.

PUBLISHED WORK FROM RESEARCH PROGRAM

	<u>Published</u>	<u>Accepted for Publication</u>	<u>Being Vetted</u>
<u>BOOKS :</u>	Blitzer/Clark/Taylor: Models * Bosson and Varon: Mining * Chenery: Redist. w/Growth Chenery/Syrquin: Patterns Coombs/Ahmed: Nonformal Ed. Evenson/Kislev: Ag. Res. * Grimes: Housing Hughes: Industrialization Jain: Size Dist. * King: Pop. Policies Kravis: ICP I Lele: Rural Dev. Lluch/Powell/Williams: Demand and Saving * Morawetz: 25 Years Saunders/Warford: Water Supply * Squire/van der Tak: Econ. Anal. of Projects Turvey/Anderson: Electricity	Adelman/Robinson: Korea (Chenery: St. Change) * Cuca/Pierce: Family Planning Goreux: Programming Kendrick/Stoutjesdijk: Industrial Investment Kravis: ICP II (Ranis: Taiwan) (Walters: Ports)	* Carnemark: Rural Rds. * Drewes: Remote Sensing *(Kakwani: Inc. Dist.) Meerman: Malaysia Norton: Mexico * Scott/Keare: Mexico Simmons: Ed. Reform Taylor: Brazil * Walstedt: Turkey
<u>OCCASIONAL PAPERS :</u>	Egbert/Kim: Portugal * Gupta: Indonesia Jallade: Ed. Lal: Project Selection * Reutlinger/Selowsky: Nutrition * Singh, et. al.: Coffee, Tea * Takeuchi: Hardwoods Zymelman: Learning	* Mohan: Poor Cities	Barnum/Squire: Househo Model * Cochrane: Fertility * Simmons: Ed. Investmen

* = funded from Departmental sources. All others funded from Research Committee authorizations.

November 16, 1977

OFFICE MEMORANDUM

TO: Mr. Peter Wright, VPD
FROM: Bela Balassa, DRC
SUBJECT: Bank Staff Working Papers

DATE: March 5, 1979.

1. I would like to address myself to the two questions you have raised in connection with the World Bank Staff Working Papers. These are the quality of the papers and their distribution.
2. I find the quality of the papers in the series very mixed. In particular, I could identify several papers over the past year that were not of sufficient quality to deserve inclusion. A related question is that of relevance. Some of the papers deal with very specialized issues that are of interest only to a limited number of people. In such instances a smaller distribution outside the series would be appropriate.
3. To improve the quality and to ensure relevance, I would suggest that you institute a procedure of vetting, similar to that we have used in the DRC. This would involve requesting comments on the paper from two referees; preferably to be done anonymously. I would not favor refereeing on a department-by-department basis because this would necessarily lead to differences in the evaluation of the papers. At the same time, one of the referees might be chosen from the Department concerned.
4. I welcome your efforts to expand the dissemination of the series in the developing countries. At the same time, we should also consider dissemination in developed countries. Arthur Lewis has observed that some major development institutes in these countries do not receive the series. I suggest, therefore, that the list of institutions in developed countries be reviewed so as to get the series to more people who could benefit from it. I have no doubt that this would ultimately be to the benefit of the Bank itself.

cc: Messrs. Chenery, VPD; Duloy, DRC; Haq, PPR; King, DED; van der Tak, PAS;
Mrs. Hughes, EPD; Mr. King, DED

BBalassa:nc

Agriculture

REPORT OF THE RESEARCH ADVISORY PANEL

ON

AGRICULTURE AND RURAL DEVELOPMENT

Vijay S. Vyas (Chairman)
James Boles
Jean Marc Boussard
Gelia Castillo
Lucio G. Reca

WASHINGTON

December 1978

III. RESEARCH NEEDS AND STRATEGY

The research program in the Bank should be directly basically to fulfill three tasks: (1) having a good general understanding of the developmental process; (2) having reliable tools for designing and appraising development projects; and (3) being able to take a position in national policy issues whenever the Bank is involved.

A significant amount of research in the Bank is conducted with these purposes in view, although it is not always clear as to which one of the objectives listed above is sought to be fulfilled.

The Bank will derive obvious advantages if the research is more consciously focused on major issues and areas. At present the impression given is that of highly diffused research efforts without a clear focus. In an institution whose main task is to promote research, such multiplicity is permissible, probably desirable. But in an institution like the Bank, research efforts should be linked with specific tasks and hence need to be somewhat more structured. Such structuring does not mean a lack of innovative work in different areas; it only pleads for periodic efforts to develop major themes that will serve to guide the research program.

A more purposeful research program has the following important elements. First, a conscious effort is necessary to identify the next set of problems that developing countries are likely to face. At present international organizations as well as national governments merely react to the problems. The Bank is not an exception to this rule. A group in the Bank with the assistance of a few knowledgeable outsiders may be able to

identify the set of problems that are likely to acquire serious dimensions in, say, the next decade. This will enable the Bank as well as the member countries to be better prepared to cope with these problems. Such a group may be constituted every 3 to 5 years, to assist in identifying the emerging tasks. This group will not indulge in merely a speculative exercise. It will review the current situation, identify emerging trends and assess member governments' capabilities in coping with the problems in key areas such as population, food, non-renewable resources, technologies, and institutional factors. It should identify the nature and variety of tasks, as well as existing and emerging bottlenecks. Fortunately, a lot of work on emerging tasks and bottlenecks is being done by specialized institutions. The Bank's researchers should bring the major findings of these studies together and relate these to its principal activities. With the back drop of such studies the Bank will be able to develop major strategies for research and lending.

Second, in the context of these emerging problems in the developing world, the main thrust of research should be to identify and spell out alternative strategies and policy options, keeping in view the socio-economic milieu in different countries. Obviously, such options will change over a period of time. However, without bringing in policy options in different sets of circumstances, developmental efforts are likely to remain partial and ad hoc.

The third group of research activities, which should be the kingpin of the research program in the Bank, pertains to those providing "guidelines for lending strategies". The projects in this category should aim at: a) an understanding of intersectoral and intra-sector linkages, and

structural and systematic problems within the sector; b) introducing behavioral aspects in the research design, which at present are almost totally ignored; and c) organizational and administrative issues related to the execution of the lending program.

It is not unusual to find that the social and physical infrastructure created at huge cost do not serve the rural poor. This is due to various administrative and institutional "leakages", an aspect on which very little systematic work is done. In brief, the main purpose of this type of research is to find out how a given amount of loan or credit can be made more effective in serving the stated objectives. To an institution like the Bank such research is of immediate importance and can promise high payoff.

The fourth category of research pertains to project level research i.e., identification, formulation and evaluation of lending projects. Various stages in the project cycle are carefully identified in the Bank, but the research support for undertaking tasks at different stages of a project is not yet firm. Systematization of knowledge in this field will also be of help to the member governments in their own economic operations.

Finally, a large developmental institution like the Bank should contribute to the understanding of the process of social and economic growth. Development is a complex phenomenon, it does not proceed along neat lines or in regular stages. The interplay of various social and economic institutions, the nature and limitations of public intervention, and the response of institutions to intervention need careful study. Equally important in this regard is understanding individual motivation and incentives. Without an understanding of the process of change, development will continue to be viewed in a mechanistic way and effectiveness in influencing

its course will be marginal. For example, though there is a recognition that economic development influences population growth, there is little knowledge as to which element of development and in what manner it influences, say, fertility behavior.

To recapitulate, the Bank's need is to have well researched ideas and views on (i) The nature and magnitude of emerging tasks in agriculture and rural development (ii) Various options available in key areas of ARD, (iii) Possibilities of making lending more effective (iv) Methodologies for identifying and formulating bankable projects, and (v) Understanding the process of change in order to draw useful inferences for policy options.

Not all of this research needs to be in-house. There are significant opportunities for collaborating with other research bodies. Before we give our views on the nature of such collaboration, it will be advisable to examine comparative advantages, and limitations, that the Bank has in conducting the type of research which can maximize the Bank's contributions to ARD.

Appendix I. Research Agenda

According to the previously defined categories of need, possible topics of new or expanded areas of research follow.

I. Nature and Magnitude of Emerging Tasks.

(A) Links between demography and ARD.

The various research projects that we have examined were, for the most part, without any explicit links with demographic studies conducted elsewhere in the Bank or in the scientific community. However, demography, rural and urban balance, labor migration, age and sex composition of the rural household and rural sector, are all of importance to ARD, and warrant expanded efforts.

(B) Water and Energy Balance.

These agricultural inputs should be given particular attention in view of their limited supply and their critical importance.

(C) New production techniques.

The "book of blueprints" is a familiar idea for any production economist. Nevertheless, it is yet a theoretical idea, with little empirical content. Now, in relation to agricultural development, the set of new techniques available is continuously changing, often with dramatic consequences, even for the poor traditional farmers. Research in this area might involve (1) a continuous review of new techniques as they emerge, particularly with close collaboration with the international centres such as IRRI and CIMMYT, and (2) the building of a set of models aiming at forecasting the dynamic consequences of their adoption on income distribution, crop location, and on national as well as international trade patterns. These studies must also incorporate social and behavioral elements.

II. Options in Key Areas.

(A) Relationships between techniques and institutions.

A prototype for this type of research is the study of sharecropping recently

done in DRC and DED. It should be expanded toward analogous investigation of other forms of institutions. Especially, socialist economic patterns should be examined from this point of view, in order to assess the conditions under which they are efficient.

(B) Risk, uncertainty, and finance.

Outstanding research has been done on the effects of uncertainty on the level of production and the adoption of new techniques. But these studies have not been related to a complementary aspect, namely finance. In affect, the financial status of a production unit is one of the major determinants of its risk aversion, however the latter is measured. A clarification of this issue would cast important light on a major determinant of loan demand in rural areas and consequently on the adoption of capital intensive techniques.

(C) Food and nutrition.

Nutritional needs for low income populations is obviously an important question. The recent pilot study in AGR should be expanded and its conclusions checked, in order to assess the efficiency of alternative forms of public intervention.

(D) Factor shares.

Technical progress in agriculture often involves three separate effects, an increase in production, a substitution of capital for labor and/or land, and economies of scale. What are the long term relative importance and consequences of these effects? This question is of major importance in evaluating the cost of helping the rural poor.

III. Making the Lending Program More Effective.

For the most part, the Bank's lending program in ARD aims at promoting new techniques. But the rationale for the adoption of these techniques by farmers and people living in rural areas is far from being clear. Research in

this area might include:

- (A) Incentives of all kinds including both taxes and subsidies.

In relation to household behavior the sociological and anthropological points of view are likely to become important supplements to the neoclassical economic framework. All approaches require a theoretical basis, to be verified by appropriate surveys and model experiments. These attempts need to be expanded, particularly in a variety of institutional and cultural contexts.

- (B) "Software" aspects of projects.

In most rural areas, the success or failure of a project depends on individual decisions which, in turn, depend on cultural patterns and institutions. So far this problem has often been neglected by the research as well as by the operational staff. Sociological and anthropological considerations would be of assistance.

- (C) Learning from prior lending projects.

A primary research priority for the Bank is to learn from its own experience, to mine the "gold mine" that it has in its past history, not only in an informal way by each staff member, but with serious application of methodological sophistication, conceptual talents, analytical expertise, plus time (lots of time) and resources.

- (D) Strategies for reaching the rural poor.

There are two aspects of this, program content and methods of implementation, particularly to minimize the "leakages" that may divert a significant part of the impact away from the targeted population.

IV. Methodology for Projects.

Computer programs for data handling and management have been developed

in various services of the Bank in an almost clandestine fashion, without it being recognized as a research problem. Nevertheless, the conceptual difficulties associated with these endeavours are far from being trivial. At the same time, quick procedures for processing the large amount of data used by the various services could improve their efficiency in a very significant way. Moreover, if, in the future, the Bank were to enter into the business of using these data for other purposes than their immediate uses for projects, these problems should be solved. Therefore, it is recommended that some identified research projects in that field should be added to the research project portfolio.

V. The Process of Change.

The major question here is to elaborate a theory of rural development. One cannot imagine a better place than the Bank for the elaboration of this needed theory.

(A) Intersectoral models.

A prototype of these is the Social Accounting Matrix. It should be developed and expanded, especially in a more dynamic direction. Many other sorts of such models could be imagined, at the regional level, casting light on regional development issues, and their effects on production and income distribution

(B) Rural industries.

Agricultural and Rural Development relies not only on farmers' behaviour, but also on the possibility of developing a significant industrial sector in the rural areas involved in projects. What kinds of industries are suitable in a variety of contexts? What are the obstacles against their birth and survival? Such are some of the questions that a rural industries research program could address itself.

(C) Insertion of traditional farmers in the market economy.

This topic should be investigated in the light of the results drawn from the "incentive" topic already referred to.

(D) Public utilities.

The role of public utilities in ARD is self evident. Nevertheless, few studies have attempted a quantitative approach to measure its impact. If successful, such studies would make an invaluable contribution to project appraisal.

Section VIII: Research Priorities in
Agriculture and Rural Development

Tuesday, March 6, 1979, Room K-4500 at 11:00 a.m.

Present: Mr. G. Donaldson
J. Duloy
J. Holsen
I.J. Singh
R. Picciotto
D. Turnham
with Mr. O. Aboyade, representing the GRAP.

Main Conclusions

1. It was noted that the Vyas Committee (RAPARD) did not examine research projects in the Agriculture and Rural Development sector which are funded internally but outside those funds administered by the Bank's Research Committee. The Report also had little or no direct information on the utility of the Bank's research product to Third World member countries.
2. The meeting agreed with GRAP 's observation that RAPARD did not discuss the very vital problems and prospects of cooperation in research with international institutions, both intergovernmental or otherwise, engaged in similar and related areas of research. Notable examples of such institutions are the Food and Agricultural Organisation and the International Food Policy Research Institute. It was agreed that such collaboration is welcomed and indeed essential, in principle. It was however always difficult at the operational level to organise effective collaboration programmes in perennial situations of project

lending pressures and tight loan programmes for rural development.

3. It was the meeting's view that the Bank's comparative advantage in the research areas lies in:

- (a) guidelines for lending strategies, with special reference to inter- and intra- sectoral linkages of agricultural projects and rural development programmes, and
- (b) identification, formulation and evaluation of lending projects.

Reservations were however expressed by the meeting on RAPARD's enthusiastic claims that "the Bank has a veritable gold mine of development experience" with high "direct benefits" that can accrue to "the rural poor."

4. The need for bolder and more systematic collaboration by the Bank with national policy and research institutions in the Third World was discussed. It was agreed in this connection that it is likely that those countries would have different perceptions and different perspectives on (a) how relevant and how urgent are research questions in relation to pressing needs and existing knowledge, and (b) what and what not would qualify as "research activity" from Third World's view, particularly in relation to data gathering, data processing, behavioral and organizational aspects.

5. The special problems and peculiarities of the Agriculture and Rural Development sector were recognised. Here, most of the analytical problems requiring attention are deep, complex, diffused and difficult as compared for example with such traditional sectors as Transportation

and Public Utilities. It would appear then that research activities in the sector of Agriculture and Rural Development would require, at least on the face of it, more resources and longer waiting periods.

6. GRAP's initial reaction was that there was an absence of systematic research in

- (a) past and present flows of domestic resources into the Agricultural sector with the national economies of the Third World,
- (b) past and current trends of flows of domestic resources for investment in rural development,
- (c) incomes structure, price relations and incomes policy in rural economies, as well as the terms of trade between Agriculture and Industry, and their interrelationships with income distribution, and
- (d) the relationship between agricultural growth and rural poverty.

The meeting felt however that most of these issues would probably be picked up either in the World Development Reports or by the Programmes Division of the Regional Offices in their normal work.

7. It was wondered whether in fact the Bank was putting adequate resources into its different Departments, as at present constituted, to undertake the kind of research agenda proposed by RAPARD in Appendix I on pp. 38-42 of its Report.

8. The meeting observed that most of the research activities by the Bank are inherently, historically or necessarily related to project

lending programmes, it should be logically clear that the proposed Research Agenda would be more meaningful if it is broken down regionally and not seen in single global terms. By the same token, the research programmes in the sectors might more meaningfully be conceived on the basis of regional devolution.

9. It was noted that the Research Agenda proposed by RAPARD represents a fine shopping list. Set however against the fact that there are at present only about 10 to 12 man-years engaged in research and research-related activities in the sector of Agriculture and Rural Development, it would be difficult to execute the Agenda. It would therefore, in the circumstance, be necessary to

- (a) draw a priority listing of potential research topics, including the additional topics being proposed,
- (b) increase the resources from the Bank going to research activities in Agriculture and Rural Development, and
- (c) strengthen the office of the Chief Economists and of the Research Advisers with a view to getting more research pay-offs at the margin.

10. The meeting noted that at present, there is a significant gap between Research and the Application of Research. It was felt that what is needed most now in the sector of Agriculture and Rural Development is probably now in the field of Adaptive Research. The need to close that gap is important not only from the internal operations of the Bank, but also from the vitally important field of strengthening the capacity of the developing countries to analyze their own development processes.

N. Islam

IS LAM
1 March 1979

COMMENTS ON RESEARCH ADVISORY PANEL ON AGRICULTURE AND RURAL DEVELOPMENT

NIR

1. The Panel evaluates the research needs and strategies in the light of three criteria:
 - Promotion of understanding of the development process;
 - Design and appraisal of development projects;
 - Advice to and dialogue with member governments on national policy issues.
2. The Panel examines only externally funded research projects, projects funded at least in part from research funds administered by the Research Committee. It recognizes that there are other projects in this field which are funded internally and which have implications for the projects which are financed externally.
3. The Panel had no direct information on the utility of the Bank's research product to member countries, especially to borrowing countries. This is an important missing element in the work of all Panels.
4. The Panel examines the Bank's role in promoting research capability in developing countries, as well as research collaborations with national institutions. But it does not discuss problems and prospects of cooperation in research with international institutions, both intergovernmental or otherwise engaged in the same areas of research. This is a subject to which some attention should be paid by the General Panel.
5. The Panel discusses the comparative advantage of the Bank in the research areas and identifies several. I think the areas in which the Bank

has comparative advantages are as follows:

- (1) Research on guidelines for lending strategies, with special emphasis on inter- and intra-sectoral linkages of projects, behavioural and organizational aspects and administrative issues related to the execution of the lending programme.
- (2) Research on identification, formulation and evaluation of lending projects. The Panel comments as follows: "Various stages in the project cycle are carefully identified in the Bank, but the research support for undertaking discussion at different stages of a project is not yet firm. Systematization of knowledge in this field will also be of help to the member countries in their own economic operations". "The Bank has a veritable gold mine of development experience waiting to be analyzed, refined and shared. Where else can one find 363 lending projects approved during the five-year period 1974-1978, with 210 of them defined as rural development projects in which more than half of the direct benefits are expected to accrue to the rural poor."

6. In my opinion, therefore, the major part of the Bank's in-House research effort should concentrate on: (The classification given by the Panel on page 26 of its Report is a useful one)

- (a) Methodological issues in project design and alternative strategies and policy options in agriculture and rural development;
- (b) Issues relating to lending strategies (including behavioural and organizational aspects).

7. In respect of (b), especially for research on behavioural and organizational aspects, close collaboration with national institutions is

essential. The time and effort involved in building up research capacity in developing countries will be more than offset by the insight and knowledge to be obtained from such research, which has been in the past a relatively neglected area in the Bank.

8. The subjects of research and its organization within the Bank (in terms of who will undertake what type of research) is not unrelated. Research related to project design and lending strategy should not only be done by the Agricultural and Rural Development Department, but also by the Regional Departments/Offices.

9. The identification by the Panel on P.26 of various research areas does not emphasize the inter-linkage between the different research areas. For example, the impact studies, inter-country comparisons and project-related research, identified by the Panel as the primary responsibility of Regional Offices, are closely related to research on lending strategies and partly related to research on project design.

10. This is where the Panel's suggestion regarding the redefinition of the functions of the present Research Committee needs careful examination. I agree with this redefinition and also support the proposal that the Council should be assisted by Standing Research Panels (subject-wise organized) to screen and strengthen research proposals prior to final review and decision by the Council. There is need for a nucleus staff on a regular basis to work for the Research Council.

11. The research on processes of change on inter-sectoral relations and national development policy issues must involve very closely national institutions in the developing countries and, in certain cases, in the developed countries. The methodological studies, i.e. including work on economy-wide models done specially by the DRC, should be minimized. To the extent that they are done at all they should be done in a highly decentralized fashion by farming them out to research institutions and/or universities in both developed

and developing countries working in close contact and collaboration with each other. The long-run beneficial effect of the promotion of this kind of methodological research (in building economy-wide models or in pushing frontiers of knowledge) should be in training up researchers/teachers and through them students in the member countries. After all, they provide the pool of trained persons from which the Bank recruits its staff members. This kind of research would have a long time horizon in terms of its implementation and the Bank should really act as a "promoter" and "catalytic" agent rather than an "undertaker" of research by stimulating research elsewhere.

12. The suggestion by the Panel that there should be periodic review of the sub-programme by the Research Council, which will co-opt outside experts in order to identify the emerging research tasks is a very important one. The experts should be drawn from developing countries and other international institutions engaged in research in the same or related fields. This periodic exercise will do the following:

- Review the current situation;
- Bring together the major findings of research and studies done elsewhere;
- Identify the emerging trends and key areas in which research is necessary in the light of the major constraints to growth and development.

13. This periodic review would be particularly useful in providing the framework within which the Bank's research programme on development policy issues (national and international policy issues) would be designed. Some of these issues would involve methodological research and many more would involve analysis of experience, including analysis of developing projects as well as of experience of other institutions and national governments.

14. As one examines the existing research projects in this area, one is struck by the absence of systematic research on the following areas:

- (a) Domestic resource flows into agriculture (part and present) both public and private, within the national economies of developing countries;
- (b) Flow of domestic resources for investment in rural development (past and current trends);
- (c) Price relations in rural economies and terms of trade between agriculture and industry and their inter-relationships with income distribution;
- (d) Relationship between agricultural growth and rural poverty.

Income
Policy
Urban-R
Migrant

I must say that there are a few gaps which come to the reader's mind on a hurried reading of the list of research projects.

15. If the Bank is to perform its function as a development agency, it implies that the Bank would promote ability of the developing countries to analyze the development process of their own economies as well as learn from an inter-country comparison. They must be equipped to identify issues and options on the basis of research. This involves building up research capacity not only within the government, but also in the universities and research institutions in the developing countries. The effectiveness of the Bank's policy advice to national governments suffers from the absence of research in the member countries themselves on the development processes, issues and policy options. The promotion of such research would be mutually beneficial. It would enable the Bank to see the issues and problems of development in the way in which the researchers and policy advisers in developing countries see them, it would facilitate a dialogue with them. The present system of dialogue between the Bank and member countries is restricted to government officials.

The Bank staff hopefully gains from the insight provided by results of research. But there is no effective research counterpart in many developing countries. Those who advise the policy makers in member countries need to be stimulated to do the kind of research on various policy issues on which Bank missions advise member countries. To say that it is time-consuming and expensive to develop this capacity in developing countries is to escape the role of the Bank as a development agency. The report of the Panel on collaboration with research institutions in developing countries is well thought out. Its suggestion that a uniform type of collaboration arrangements should not be sought, is a very appropriate one. I particularly draw attention to page 23 of the Panel's report in this connection.

Education

E W T

REPORT OF REVIEW PANEL

Energy, Water and Telecommunications

I. INTRODUCTION

The Review Panel, appointed in 1978, consisted of the following members:

Mr. M. Boiteux (Chairman)	President Electricité de France
Prof. A. R. Prest	Professor of Economics London School of Economics
Mr. Romulo Furtado	Secretary General Ministry of Communications Brazil
Mr. A. K. Roy	Sanitary Engineer SEARO, WHO
Mr. Lambert Konan	Director General Energie Electrique de la Côte d'Ivoire

Its terms of reference were as follows:

It is intended that a review of the research program of the Energy, Water and Telecommunications Department over the period 1972 to 1978 should be conducted by a high level panel of experts from outside the Bank. In light of the overall objectives of the Bank's Research Program, the general questions to be addressed by the panel will concern:

- (a) choice of research topics;
- (b) the way in which the research has been conducted;
- (c) operational relevance of the results; and
- (d) lessons for future research efforts.

foreign consulting firms. Technology seminars and meetings with relevant professional bodies have also been frequent, e.g., the World Bank Seminar on Sanitation Project Planning in London in December 1978 when discussions were held at the Institute of Civil Engineers on rural water supply, urban water distribution, excreta disposal, sanitation alternatives, water supply and health, the role of economic assessments in such matters, and so on. Some of these meetings have been in developed countries but the great majority have been in LDC's.

The members of the panel from LDC's also collected some information of their own about the impact in their own countries of the economic principles elaborated by the Bank. The crucial point seems to be that communication has to take place with the right people. Conferences, for instance, need to be aimed both at people currently enjoying administrative responsibility and at the younger executives who will subsequently make their mark in public utility operations in developing countries. Publication of books or distribution of discussion papers by the Bank is a necessary but not a sufficient condition for effective dissemination. More specific methods of communicating ideas need to be adopted to make any marked impact.

Perhaps the best indication of the effectiveness of the World Bank's efforts is that marginal cost pricing principles in water and electricity supply are more often known in LDC's than in the USA.

✓ III. Future Research

Introduction

In sketching a program for future research, we cannot start in vacuo but must bear in mind all the time the particular skills already available in the Department, the comparative advantages of EWT relative to other departments

in the Bank, the research guidelines supplied to us, and so on. Quite apart from recognizing these constraints, we must also beware of a number of other considerations. The first is that the problems of the developing world do not stand still over time; nor does the subject of economics. So whatever we think may be appropriate in the way of research at present may be much less so in a few years' time. This in turn implies that one needs to think of some mechanism for ensuring that research topics and techniques respond over time to changing commitments. It would after all be the height of irony that a department concerned with appropriate technologies should itself use inappropriate methodology in investigating these choices. We shall return to this point later.

Two further observations need to be made. One is that good basic research is not something which can be produced to order; anyone who protests that it can is a fool or a knave or both. All that we, or anyone else, can do is to make general suggestions which may or may not bear fruit in the shape of original or illuminating research work. Furthermore, we do not subscribe to the proposition that the quantity of paper resulting from a research project is a meaningful indicator of its quality. The second observation is that we have to be a little careful about the proposition that all worthwhile research must be of a multi-disciplinary character. Whilst fully recognizing that inputs are needed from a variety of disciplines in many research projects one has to be careful that this does not lead to a lowering of standards all round.

With these general observations behind us, we shall now examine a series of suggestions about future EWT research and express tentative judgements about their importance. Then we shall say something about research organization. Finally, we shall come to our overall conclusions.

Research Topics

A large number of suggestions were made to us by the Department. We rejected some on the grounds that they did not fall within our concept of research; and others because we did not think them appropriate for EWT. Of the remainder, we accepted some more or less as proposed but we scaled others down quite considerably. So what follows is a list of proposals agreed by the Panel after considerable discussion. Those projects deserving the highest priority are marked with an asterisk. Further details of the manpower implications of the proposals are given in Annex II.

(i) Energy: General

We feel that there is here a new field of major importance and that the Department has very considerable comparative advantages in studying it. The following topics are extremely important, badly in need of further work and highly appropriate for the Department to concentrate on:

LDC energy outlook (annual consideration of energy developments);

* Energy and development (interrelation of energy consumption and development);

Energy demand management and conservation (possible savings and the means of effecting them);

Non-conventional energy (better utilization of traditional sources such as firewood and examination of new ones such as solar heating).

We recognize that there is a division of labor in the Bank on energy research and so we do not, for instance, suggest that EWT should do work on the world energy outlook. But if all Bank applied energy research on both the supply and the demand sides were by chance to be concentrated in EWT at some future date, we should recommend that topics of that kind be then added to the program.

The above recommendations would absorb some 64 staff-weeks and 40 consultant-weeks of time per annum initially (all subsequent figures of manpower should be interpreted as initial requirements).

(ii) Energy: Oil and Gas

Many of the remarks under (i) apply in this case too. Two particular subjects seemed to us to have high priority. They were:

- * Natural gas issues (e.g., flaring of natural gas and potential domestic markets for gas in LDC's);

Inter-fuel substitution (appraisal of substitution possibilities).

The resources involved would be 8 staff-weeks and 35 consultant-weeks per annum.

(iii) Energy: Electric Power

This area, unlike the two previous ones, has been a mainstay in the Department for a long time. However, there are still a number of issues which call for further research effort. We suggest the following:

- * Standards of rural electrification (appropriate engineering standards for rural systems);
- * Power pricing seminars (dissemination of power tariff pricing principles);
- * Power/energy pricing (optimum energy pricing policies);

Autogeneration, cogeneration, technology monitoring, methods of power supply to remote areas (small pilot type studies in each of these fields);

Energy transmission costs (case studies for electric power, gas, etc.).

It is estimated that 64 staff-weeks and 77 consultant-weeks per annum would be needed.

(iv) Water Supply and Sewerage

Like electric power this has been a staple part of EWT activity in the past. Some of our recommendations spring directly from this previous work.

- * Technology dissemination (communication of the outcome of the major recent investigation into water supply and waste disposal technology).
- * Follow-up research on technology (e.g., methods of reducing water consumption).
- * Resource recovery (technical and economic evaluation of the major reuse technologies).

Multicity and multipurpose projects (special problem of water supply, etc., when it is not confined to one city or one purpose).

Fifty four staff-weeks and 102 consultant-weeks per annum would be involved.

(v) Telecommunications

We are still of the opinion that in the past this area has not received the research attention which it justifies. We should like to commend two research areas:

- * Nature and characteristics of telephone usage (analysis of telephone usage; transport usage/telephone usage tradeoffs);
- * Pricing policy (e.g, pricing issues raised by decreasing costs).

Thirty six staff-weeks and 88 consultant-weeks per annum would be needed.

(vi) Multisector Studies

We endorse the following proposals which have been made:

- * Alternative financing of infrastructure (financing by local property tax, drainage levies and land betterment taxation);

Asset revaluation (incorporation of appropriate principles of asset revaluation in public utility operation in LDCs);

Appropriate institutions for decentralized services (e.g., should one authority be responsible for all utilities in a local area?)

Twenty-four staff-weeks and 31 consultant-weeks per annum would be involved.

The overall resource total of these recommendations is 250 staff-weeks and 373 consultant-weeks per annum. We shall come back to the significance of these figures later.

Further Research Developments

The topics listed above are those to which we give priority. However, there are a number of possible further developments to which we should like to draw attention. Reference is made to some of these in the technical annexes but it may be helpful here to illustrate by reference to multisector topics. As will be seen, the multisector proposals we have endorsed above represent only small parts of the potential fields of enquiry.

(i) Public Finance Aspects

There are two areas here which we deem to be of great importance. The first is to emphasize that charging mechanisms which lead to surpluses of revenue over costs have a great deal to be said for them in developing countries. For instance, when there is a situation of excess demand in the face of charges on a marginal cost basis, as appears to be the position with telephone systems in a number of countries, there may well be a case for increasing charges so as to eliminate excess demand and generate much larger surpluses than at present. We say "may well be" as we are acutely aware that at present there is a veil of ignorance over the character of consumers, the part played by telephone communications in economic development and so on. That is a primary reason why we recommend expansion of research in the telecommunications field.

The second public finance area is investigation of the effectiveness and effects of different methods of levying charges on consumers. It is a standard approach to charge for public utility supplies by reference to amounts consumed. But there may well be arguments of administration and equity for considering other methods in whole or partial substitution. Thus a system of charging property owners for water and sewerage improvements has a lot of points in its favor. One is that effective charges for water consumption (taking account of those leakages which owe more to human ingenuity than to defective water mains and the like) may be very difficult, or prohibitively expensive to enforce. Another is that water and other site-specific improvements such as sewerage must be expected to work themselves through into property values via increases in rents. Very similar points apply in rural electrification where one is liable to have a considerable excess of average cost over marginal cost in the initial stages. Even though it may not be possible to capture all the benefits accruing to property owners by this route at the very least cost of utility provision could be recovered.

One or two other ideas have been put forward in this area. One is that the argument that property owners would experience cash flow difficulties in meeting such charges could be met by allowing deferment (with interest) until the property is sold or otherwise transferred. Another is that schemes of this sort may be a vehicle for self-help - in the sense that if a large proportion of the property owners in a given area voluntarily agree to ask the authorities for help in making such improvements, this is an unambiguous gain to all concerned.

We do not assert that research should necessarily be oriented towards this particular charging device. There are clearly other alternatives (e.g. additions to annual property taxes) with differing merits and demerits. What we are saying is that there is a case for investigating in depth a whole variety of methods of cost recovery.

(ii) Inflation Accounting

Another financial problem is that of the appropriate system of public utility pricing under conditions of 'permanent' inflation. There are at least three separate issues. One is the pricing of fixed capital costs. It may or may not be necessary to think in terms of replacement costs, depending on the exact way in which plant costs enter into the charging process e.g. in so far as they only enter on an incremental basis, this automatically takes care of inflation. Inventory accounting is another problem - LIFO v. FIFO methods et hoc omne - but its importance clearly depends on how long stocks are normally held by public utilities and how rapid is the rate of inflation. The third component is capital gains (losses) arising from decreases in the real value of monetary liabilities (assets). It may be the case that none of these three elements is of critical importance for public sector pricing but it is, to say the least, worth trying to find out.

(iii) Data Collection

Although we do not see a primary role for extensive data collection analogous to the ideas put forward by the Panel on Income Distribution and Employment, we nevertheless feel that the EWT Department has a role to play in acting as a world-wide storehouse for certain particulars. There has already been a very useful exercise in surveying low cost water disposal technologies; and similarly in the sampling survey of rural household electricity consumption in El Salvador. It is for this reason that, as already explained, it would be an important contribution to knowledge to conduct a major survey using both qualitative and quantitative evidence of telephone usage in some selected LDCs.

Quite apart from data collection in the narrow sense, we feel that, as is now proposed, more information might be gleaned than in the past on the effectiveness of particular public utility charging schemes which have been recommended by the department, and that there should be systematic consideration of the sorts of pricing techniques most relevant for countries at different stages of development (e.g., is it appropriate that country y, a laggard in the development process, should adopt the system operating today in country x - a country which is well ahead of country y - or that operating 20 years ago in country x?)

(iv) Social Pricing

We recognize the necessity of paying adequate attention to the social aspects of public utility pricing but nevertheless have some reservations about the likely distributional advantages of 'lifeline' pricing or increasing block tariffs. First of all, there seems to be no very good reason for singling out one group of poor people rather than another. And in any event with telecommunications it is difficult to construct sensible tariffs discriminating between, say, urban and rural poor. Second, it is all too easy to assume that poverty relief is synonymous with income redistribution; this may or may not be the case depending on which other groups gain or lose in the process. Thus a 'lifeline' system might work in such a way that the poor gained, the middle income groups lost and the rich gained, even if total consumption of the utility remained unchanged. And once the possibilities of output changes are taken into account there are unlimited consequences for income distribution depending on, for instance, the relative distribution of pre-tax incomes generated by the industries which grow and contract.

We must also revert to our earlier point that improvements in public utility provisions may increase property values. If so, we could have a situation where people at low income levels may gain through cheap electricity, water or whatever, but lose through rent increases. Finally, it is an old story that once subsidization of particular interests begins, it is virtually impossible to remove it and almost as difficult to prevent it from spreading.

The fact that we deem it difficult to pin down the distributional benefits of social pricing in the public utility area does not mean that we think them unworthy of research. Quite the contrary. There clearly is a case for some sustained thinking about such matters to see whether the 'lifeline' systems referred to in the Department's papers can really be justified on distributional grounds.

(v) Benefit Calculations

We saw earlier that the Department has not been able to make much headway in the estimation of benefits. There may be possibilities here for further investigation of benefits flowing from telecommunications provision or different sanitation schemes, but we cannot really see that there is much likelihood that even extensive research by EWT is going to add much to knowledge in this area. This does not mean that there is no scope for research into benefits construed in a much more general way but rather that any such investigations would fall outside the province of EWT.

(vi) Institution Building

Although we fully recognize that the particular structure developed in one country will be unlikely to suit the traditions and political conditions of another country, we nevertheless think that the Bank has a

most important role to play in setting out appropriate principles for the organization, pricing policies and investment policies of public utilities in very different countries. This is why, for instance, we strongly endorse the proposals for electric power dissemination seminars, the issue of guidelines relating to sewerage technology and the investigation of local public utility organizations as set out above.

Research Organization

An appropriate organization is not a sufficient condition for the generation of high quality research but it may be a necessary one. We shall divide our comments into three categories: those relating to matters inside EWT, those involving EWT and other Bank departments and those relating EWT to borrowing countries.

Inside EWT, we have two points to make. The first is that there are very close links between research studies in oil, gas and electricity and the departmental organization should reflect this connection. Secondly, we saw earlier that there is no one person who spends all his time on research. We wonder whether there is a case for staff members spending periods of, say, a year fully on research alternating with periods fully assigned to other duties. It may be that the nature of the department's work does not permit such a clean-cut division but it is one which has been found immensely useful in different universities in different parts of the world.

Relations between EWT and other parts of the Bank could be improved in a variety of ways. The most important is that much more research impetus ought to come from the regions. It is highly regrettable that more of the projects studied by the Department in the last six years did not have a regional origin. Perhaps the process of operational requirements giving rise to research proposals would be helped if there were more formal and more regular meetings between regions and the appropriate members of EWT. But we suspect that the root cause may well lie in a lack of opportunity to think about the research implications of operational

requirements long enough or deeply enough. Whatever the precise cause, we feel confident that this is a matter requiring attention in the regions rather than in EWT.

Although the regional relationship is the most important point, it is not the only one. We were surprised to find an absence of joint research between departments. We simply cannot believe that issues do not arise which are of common interest to EWT and, say, Transport or Agriculture. Nor can we believe that the quality of research all round would not be improved by more collaboration. The same argument does not apply nearly so much to relationships between DPS and EWT but even here there are areas, pre-eminently energy, where there is scope for more collaboration and indeed integration than has been evident in the past.

When we turn to EWT in relation to borrowing countries, there seems to be less amiss than with relations inside the Bank. We were impressed with the very real efforts made to communicate research findings to the relevant people in other countries and we fully endorse the present and proposed methods of communicating this intelligence. There are one or two suggestions for improvement (e.g. regular circulation among interested parties of the lists of documents by EWT, on-the-job training for LDC personnel through exchange programs with developed countries and more cooperation with other international agencies) but these are marginal developments only. We approve of one recent innovation, in which a staff member of a borrowing power authority worked in the Bank for 3 months in order to familiarize herself with Bank policy toward power tariffs. One small point might be made, however, and this is really one of internal Bank organization. We were informed that dissemination is impeded by the very long time taken for the translation of research findings into French or Spanish. Anything which could be done to speed up this process would clearly be desirable.

Conclusions

Our overall recommendations can be most readily appreciated if expressed in tabular form:

Research Manpower

	-----FY74-78 (av.)-----		-----Proposed-----	
	<u>Staff</u> (weeks p.a.)	<u>Consultant</u> (weeks p.a.)	<u>Staff</u> (weeks p.a.)	<u>Consultant</u> (weeks p.a.)
Energy (general plus oil and gas)	15 (16%)	27 (10%)	72 (28%)	75 (20%)
Electric Power	54 (56%)	92 (35%)	64 (26%)	77 (21%)
Water & Sewerage	17 (17%)	141 (53%)	54 (22%)	102 (27%)
Telecommunications	11 (11%)	6 (2%)	36 (14%)	88 (24%)
Multisector	nil(0%)	nil(0%)	24 (10%)	31 (8%)
Total	97 (100%)	266 (100%)	250 (100%)	373 (100%)

It can be seen that, on a 36 weeks per annum basis, it is proposed that the staff complement be increased from rather over 2½ person-years to about 7; and consultant employment from 7½ to a little over 10.

Several points need to be made about these recommendations. The first is to remember that we are defining research in the broad sense of including dissemination and related activities as well as research study, strictu sensu. The second is that although there is an approximate two and a half fold increase of staff the increase in consultant time is less than 50%. We deem it to be an advantage to place the greater weight on the expansion of the permanent staff; and we conclude that research funding would not increase in anything like the same proportion as staff time. Thirdly, the expansion

suggested owes a lot to the development of energy studies. The percentage increase in both staff and consultant time would be markedly less were it not for this fact. But we regard energy as a very special case entirely justified by the dramatic changes in the importance of this subject in recent years. It should also be noted that the expansion of research narrowly defined is less than the overall percentage figure because of the increased emphasis on dissemination. Finally, it will be seen that there are some important changes in the percentage distribution of staff and consultant time, e.g., a substantial fall in electric power consultancy time and a substantial increase in that for telecommunications.

To conclude, we feel that the research activities of the department have been understaffed in the past, its previous record shows that it is very capable of turning out very worthwhile research and that there is a whole string of important projects awaiting investigation in the near future.

IV. RECOMMENDATIONS

In view of the Department's record and performance to date and potentialities for the future, we recommend:

- (1) An expansion of the Department's research staff from the current very low level of the equivalent of $2\frac{1}{2}$ person years per annum to, say, the equivalent of 7 person years in the first instance, this figure to be reviewed after experience has been gained of operating at this expanded level. Consultant capacity should be increased from $7\frac{1}{2}$ to $10\frac{1}{2}$ per annum.
- (2) There are strong grounds for expanding activity in the area of oil and gas, etc., and, to a lesser extent, in telecommunications.
- (3) Items such as rural electrification and the dissemination of power pricing and water/sewerage technology will necessitate some expansion.

- (4) New methods of charging, their practicality and their advantages, need to be explored in depth.
- (5) Public utility pricing under conditions of inflation needs to be investigated in LDCs.
- (6) The Department could play an immensely useful role in collecting data information in selected cases.
- (7) Research into social pricing is necessary to determine whether it can be an effective means of income redistribution or not.
- (8) We do not see a great deal of scope for work in benefit calculations.
- (9) Institution building must continue to be of major concern.
- (10) EWT internal organization needs to be re-examined with an eye on the further integration of power work with other energy work; and on allowing staff to have longer periods of full time research.
- (11) We regret the absence of research stimulation from the regions and hope that methods can be evolved to improve this state of affairs. We should also like to see more joint research collaboration between EWT and other departments.
- (12) Some improvements might be made in the process of communicating research results overseas.

RESEARCH PROJECTS MANPOWER NEEDS

Note: It should be fully understood that these figures are no more than rough approximations and that they relate to the initial scale of activity.

<u>Project</u>	<u>Weeks per annum</u>	
	<u>Staff</u>	<u>Consultants</u>
<u>Energy: General</u>		
LDC energy outlook	25	Nil
Energy and development	10	40
Energy demand management conservation	5	Nil
Non-conventional energy	24	Nil
<u>Sub-total</u>	<u>64</u>	<u>40</u>
<u>Energy: Oil and Gas</u>		
Natural gas issues	3	20
Interfuel substitution	5	15
<u>Sub-total</u>	<u>8</u>	<u>35</u>
<u>Energy: Electric Power</u>		
Standard of rural electrification	12	25
Power pricing dissemination	20	Nil
Power-energy pricing	20	24
Autogeneration, cogeneration monitoring technology and remote area power supplies	8	16
Energy transmission costs	4	12
<u>Sub-total</u>	<u>64</u>	<u>77</u>
<u>Water Supply and Sewerage</u>		
Technology dissemination	24	36
Technology follow up research	6	24
Resource recovery	18	36
Multicity and multipurpose projects	6	6
<u>Sub-total</u>	<u>54</u>	<u>102</u>

<u>Project</u>	<u>Staff</u>	<u>Consultants</u>
<u>Telecommunications</u>		
Nature and characteristics of telephone usage	20	60
Pricing	16	28
<u>Sub-total</u>	<u>36</u>	<u>88</u>
<u>Multisector</u>		
Alternative financing of infrastructure	9	12
Research revaluation	6	10
Appropriate institutions	9	9
<u>Sub-total</u>	<u>24</u>	<u>31</u>
<u>Total</u>	<u>250</u>	<u>373</u>

Income
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REPORT OF THE
RESEARCH ADVISORY PANEL
ON INCOME DISTRIBUTION
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May 1, 1978

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staff are more subtle and not cost-related. Essential is a definition of research priorities that is conscious at all stages of the policy relevance of the results, with less attention to pure methodological research and an academic audience. We include in the following list of specific recommendations some suggestions for such a focus, as well as particular means of improving the dissemination of results and the administration of the research program.

List of Principal Recommendations

Substantive Research Priorities

Data

i) We recommend a considerably greater initiative and expenditure by the Bank to assure collection and dissemination of reliable, consistent and continuous data on income distribution and employment. For a number of representative countries, time series data should be obtained. Information should be sought for relevant socio-economic groups. Data collection and analysis, particularly in the preliminary phases, should be closely related.

ii) We see considerable merit in a decisive Bank contribution to the design and execution of the 1980 Census for a representative panel of countries. The objective of this exercise would be to establish benchmark measures for the distribution of income and the pattern of wage rates and earnings.

Income Distribution

iii) We recommend a change in focus from the size distribution of income per se to the levels and changes of the income status of a relevant set of socioeconomic groups. Of special importance is closer attention to the changing composition of socioeconomic groups over time.

iv) We detect a need for issue-oriented research to examine the direct and indirect consequences of particular policy interventions on various absolute and relative distributional indicators.

v) Income may not be a sufficient condition for the fulfillment of basic human needs or an adequate measure of welfare. We therefore endorse research upon a basic needs approach, especially in the areas of measurement, linkages among the components, and characteristics of delivery systems. However, it is important that this research upon basic needs be closely integrated with that upon the income distribution as a whole.

vi) We suggest that research upon specific policy instruments should be complemented by a series of comparative case studies organized around representative country units.

Employment

vii) We endorse an emphasis upon analysis of the functioning of labor markets, and the relationship between wage rates, earnings and employment in different institutional settings and for different sectors.

viii) We recommend a more careful and consistent measurement of employment and underemployment, and a systematic study of those who are and may remain in these groups.

ix) We judge that the Bank has a comparative advantage in project-oriented research that has not been satisfactorily exploited. A concerted effort should be made to assess the direct and indirect employment impact of its own many projects.

Research Dissemination

x) We recommend the preparation of a new series of reports aimed at the non-technical reader in the Bank. In the same spirit we see a need for an expanded seminar program at the beginning and conclusion of the research cycle for the regional departments and the operating divisions.

xi) We recommend regular missions to developing countries that have been studied, and others, to present research findings.

xii) We suggest publication of a new Bank Staff Papers to enhance the dissemination of the Bank's research output and to motivate research more relevant to Bank and developing country policy.

Research Administration

xiii) We recommend wider latitude for Bank research management in initiating projects and financing the first phases of projects.

xiv) We conclude that the present system of project-by-project evaluation is too mechanical and leads to bland evaluations. We suggest a more subject-oriented and recurrent review of completed and ongoing research.

available. The thrust of our recommendations is to elevate systematic and aggregate data production to an equivalent status. Such conscious and continuing effort by the Bank would have a large pay-off for the quality and policy consequences of the research done upon income distribution and employment, both inside and outside the Bank.

III. Income Distribution Research Priorities

We have identified four priorities for future income distribution research. These include research upon the characteristics of socio-economic groups; study of the consequences of different policy interventions pursued by countries to alleviate poverty or improve the distribution of income; specific analysis of the effectiveness and implications of a basic needs approach to the problem of inequality; and comparative case studies of the relationship between national strategies of development and evolution of the distribution of income. These new directions are compatible with the evolving interests of the Income Distribution Division, and build upon its previous analyses.

Our first category exploits socio-economic groups as central actors in the production and distribution process. Empirical studies of the behavioral characteristics of these groups are a fruitful area for investigation. Some of these characteristics have been more studied than others - like consumption demands; others have been less explored - like the possibilities for substitution among different classes of workers in production; and still others have been largely ignored - mobility among groups and regions.

These characteristics, among others, are the essential building blocks for more complete and formal models of the distribution process. To some degree, as Appendix B comments, earlier Bank research has proceeded to formal models that are not firmly rooted in these behavioral relationships. There is still much to learn about the nature of the demand for labor by small sector industry, urban service activities, and peasant agriculture. Supply conditions of labor, including those of supplementary earners, have not been systematically examined. The appeal of modern industrial goods to low income consumers, and differentially in urban and rural areas, is likewise a topic for further study.

Such empirical investigations are required for a wider range of countries. The hypotheses have an interest in their own right; the research is not merely a means for determining the best parameter estimate for one or another model. We want to know how different groups are likely to respond to changes in income, prices, wages, etc., and therefore whether income change alone is sufficient to alter some of the worst characteristics of poverty.

Closer attention to the changing composition of these socio-economic groups over time is especially merited. Equal measures of inequality give rise to far different implications in societies of high and low mobility. Temporary circumstances of individual poverty can be compensated by transfers, private and governmental. Permanent, continuing conditions of deprivation for the same groups are another matter.

Socio-economic mobility is not an easy subject to study. Longitudinal data are not abundant in developing countries, particularly for the rural and informal sectors. What we have is limited to a few surveys. There is more that can be done in the formal urban sector, however. Most developing countries now have social security schemes and hence data on individuals over time. The importance of the mobility issue commends a major effort to define a research project on the subject.

A second thrust for future Bank research ought to be analysis of the impacts of particular policy interventions. What makes income distribution policies more difficult to implement than most is that the initial consequences get diluted by subsequent market interactions: a rise in minimum wages may limit employment opportunities for the unskilled, as well as contribute to price increases that cancel the gain in nominal wages; public services that are provided free or at nominal cost may be traded or underutilized. There is a need to pursue systematically these and other policies to trace their ultimate impact.

Such partial analysis frequently runs aground because the second-order effects should ideally be studied in a general equilibrium context. Yet there are also many cases where one can stop short of looking at the whole economy to understand what has happened. It is that difficult, but creative, intermediate research that we wish to encourage.

The policy interventions that could be studied are diverse. They range from governmental sectoral programs involving the selective provision of social services, food distribution programs, etc., to macro-economic policies like monetary stabilization packages, minimum wage legislation, and tariffs and subsidies encouraging more complete integration into world trade and capital markets. They also explicitly include the impact of individual Bank projects as well as Bank sectoral lending priorities. The consequences of developing country interventions as well as the experience with loans and credits are relevant to the continuing evolution of Bank policy. Bank recommendations for specific member country domestic policies, as well as its own selection and design of projects, should both be informed by such research.

One specific set of policies merits special and separate attention. Growing concern within the Bank, as well as among development assistance donors more generally, with a basic needs strategy commends the subject for careful analysis. It is a natural and appropriate outgrowth of the Bank's interest in absolute poverty and its indicators, and policies to alleviate its worst effects. In designing its own research, the Bank should take cognizance of the mushrooming volume of investigations underway in other international agencies like ILO, UNRISD, and UNESCO as well as in national donor agencies.

Three aspects would seem to have priority for the Bank. One is the analysis of linkages and complementarities among the various basic needs that have been advocated. This is an essential input into the efficient design of appropriate delivery systems to satisfy the needs. The second is the consistency between satisfying basic needs and continuing inequality in the

distribution of income. There is sometimes the suggestion that a basic needs approach can leave the production and distribution structure substantially unaffected, and avert significant income redistribution. Yet large changes in the composition of output may be implicit in a basic needs approach, with consequences for the returns to labor and capital, as well as the ownership of productive resources. Closer examination of the overall distributive implications and compatibilities of a basic needs approach is therefore very much required.

The third topic is an extension of the last. It is the integration of the basic needs approach within a broader framework. More careful attention must be paid to which basic needs the market can satisfy better than others and to what the potential trade-offs may be between provision of such needs and other applications of such resources that might enhance equalizing growth. Absolute and relative deprivation, as well as economic growth itself, must all be interrelated more explicitly.

These questions are all amenable to research. They are issues in which the Bank has considerable interest as well as comparative advantage. It is less obvious that topics like participatory planning or internal political issues involved should be accorded the same priority. The first duplicates what the ILO has been studying; the latter involves questions of the nature of the state and the interests it represents, complex subjects in which the Bank does not seem to have an evident expertise, and which are susceptible to potential controversy.

Our fourth category is a natural complement to the issue-focused analyses previously discussed. We see advantage in a series of comparative case studies organized around country units that can capture the cumulative impact of diverse development strategies. The countries should be carefully chosen for representativeness. Close collaboration with local researchers and research institutes should be established as part of such a project, as well as a start on collection of basic data.

The usefulness of such country studies for policy purposes should perhaps be underscored. The now changed perception of developing country opportunities to benefit from international trade has been much influenced by such comparative national studies; one pioneer effort has been undertaken by the Bank itself. That had the advantage of a simple measure, effective protection, around which the studies could be grouped. Similar organizing principles must inform a set of studies on development and distribution to avert mere catalogues of policy measures and unstructured speculation.

These four specific research priorities give substance to our earlier views relating to desirable objectives of the Bank research program. These are not projects as they stand; they obviously require more precise formulation. It is our sense that it will repay the effort to do so.

IV. Employment Research Priorities

Our priorities for research upon employment issues are, not surprisingly, closely related to those for income distribution. They may be

grouped under three categories: careful study of developing country labor markets; analysis of the characteristics of the unemployed; and research on direct and indirect employment creation resulting from different kinds of projects. These generally conform to the emphases of the Employment and Rural Development Division. Their effective implementation would seem to require a degree of coordination of research upon employment among the relevant research divisions that has been lacking in the past.

The need to know how labor markets work in developing countries is a pressing requirement. The institutional circumstances that condition market forces, the relationship of enterprise characteristics to labor demand, and the determinants of labor supply are all important parts of the story.

The principal concern is whether there is any tendency for wage rates to adjust to unemployment and to facilitate creation of new employment opportunities. How long the adjustment process takes, and whether it favors particular groups - skilled or unskilled, say - are central issues, especially when population growth assures continuing rapid expansion of the labor force.

Labor markets have been conventionally disaggregated into three components: the informal and formal sectors in urban areas, and a rural sector. These distinctions have facilitated the construction of analytic models, but may not exhaust the potential for study of their different adjustment processes.

There seems to be abundant opportunity for studies that examine the informal sector in detail to determine which activities expand with higher income, for example, as well as the sensitivity of employment opportunities to wages paid in these different activities. The characteristics of the internal labor market - the practices of recruitment, training and promotion within firms - likewise call out for study, particularly in the middle income countries. The role of trade unions, of hiring and firing regulations, and of the practices of public sector enterprises, are important and neglected subjects. They have considerable influence upon how efficiently and effectively labor markets can perform. Finally, there is the structure of employment within industry, and the pattern of interindustrial wage rates, that have not been examined with care.

We also call attention to the neglect of the growing importance of international labor migration - increasingly unskilled - as a phenomenon relevant to many developing countries. The implications for employment creation in these countries, the role of remittances, the permanence of settlement abroad, and the consequences for income distribution are questions that would repay careful research. Not least, such migration - like the movement of capital and goods - affords a mechanism by which the poor can share in the prosperity of the rich.

Our second category is a logical counterpart to the focus on how labor markets function to create employment opportunities. We note the need for more careful and consistent measurement of unemployment and underemployment as well as systematic study of those who belong to both groups. In many

countries it is almost a matter of sheer guess-work to assess the degree of unemployment and underemployment. Inconsistent definitions over time and among countries inhibit meaningful comparisons. The composition of these groups are not known with great precision. Nor is there much information about how they are financed when they are not working, or have limited earnings opportunities.

Policies to promote employment are, as a practical matter, policies to create jobs for many who are currently without work or underemployed. The effectiveness of such policies necessarily depends upon better knowledge about the persons for whom jobs are being created. Design of income transfer mechanisms to those without earnings require similar information. We are not advocating mere compilation of statistics. In most countries policies of both kinds to deal with unemployment and underemployment have been tried. It is important to find out what has been successful in reducing the pool of the jobless and partially employed and to analyse the reasons for failure as well as success.

A third line of research activity to be encouraged is more specifically project-oriented. High in priority are studies that trace through the direct and indirect employment effects of different types of projects. For example, does lending that establishes a low capital input per job ultimately mean a larger level of employment? Under what conditions will such a proposition hold, both in rural and urban settings? This type of inquiry can start from the data generated by particular projects themselves, but requires extension beyond direct and short-run impacts.

A second aspect of project-oriented research should be technology-focused. Some Bank work already has been undertaken in the design of civil construction techniques that are more suitable for labor abundant economies. The research derived from that experience has been largely descriptive and uninformed by more analytic considerations. More can be done. Much of the small-scale industry research now being planned can be tied to different kinds of projects actually implemented.

Project-oriented research has not always been highly regarded because it has seemed insufficiently conceptual, and rather too much a practical matter. That is a mistaken view, especially from the vantage point of the Bank. Understanding and interpreting practice is not a mere matter of description. An economics, as well as an engineering, perspective is required to be sure that relevant interactions are not missed. The experimental opportunities afforded by project-related research are matched by the need for conceptual talents if they are to be effectively exploited.

Research on employment issues by the Bank is complicated by the designation of the ILO as the primary U.N. institution in this area. This leads to overlaps of responsibility, particularly as regards collection and analysis of basic data, and imposes problems of coordination. The Employment Division also has had a far-ranging set of obligations that have made it difficult to focus its research efforts upon a series of key projects. The priorities we have suggested may help better to define the interface with the

ILO, better to concentrate the efforts of the small number of staff in the Division, and better to coordinate the research under way in other divisions.

V. Articulation

Research at the Bank has among its prime objectives an influence upon Bank operations. Indeed, many would regard it as the principal goal. For that very reason, the relationship of research to operations has not been an easy one within the Bank. Operational expectations of a proximate feedback are inevitably frustrated by the larger and longer perspective of the research effort, the intermediate rather than final character of much of the output, and the generic inability to meet close deadlines. The small size of the research staff relative to Bank operational capacity also means a limited in-house capacity to take on specific problems for solution, and thereby creates an impression of lack of responsiveness. Limited staff likewise reduces the capacity to perform research directly. The role of consultants is therefore large; in the early phases of the research on income distribution, it was unusually so. These consultants are not on the scene to explain and motivate their research; nor is it easy for them to mold it to conform better to the interests of others in the Bank. Their interactions are limited on the whole to a restricted research circle.

There has been a conscious decision, moreover, to protect formal research from the all consuming demands of immediate problems. The Income Distribution Division, for example, was sheltered from operations by its assignment to the DRC in order to facilitate its initiation of a research program. This has been tantamount to the creation of a small research center within a larger institute for development economics. One of the consequences has been a lively and congenial atmosphere - involving more personal interaction than seems typical of the Bank as a whole, and an independence that is an important element in creative scholarship.

Elsewhere in the Bank, however, such an arrangement is looked upon with a somewhat jaundiced eye. It is interpreted as freedom to pursue esoteric and irrelevant interests. This lack of shared values among different parts of the Bank reflects itself in the style and extent of intellectual interaction. Despite procedures designed to be supportive of contact, and indeed, a variety of requirements for consultation, there has not been much effective collaboration. Research projects have been primarily developed by the researchers. We have found expressions of disappointment among Bank nonresearch staff regarding the usefulness and relevance of the research, and on the whole, little enthusiasm: laissez-faire seems to be the modal view, preserving as it does the status quo.

Conversely, among researchers themselves engaged in the study of income distribution and employment, there is also dissatisfaction with inadequate attention to, and appreciation of, their efforts. Potential users in the rest of the Bank are not entirely innocent victims. As far as we can tell, it is not standard practice for those with regional and operating responsibilities to examine research reports with care, and still less to

NOTES ON FUTURE WORK IN INCOME DISTRIBUTION DATA

These notes present some very preliminary ideas on possible directions for future work in the area of income distribution. They are intended for internal discussion in the DRC and in no way constitute a systematic attempt to map out a medium-term research program. Such an effort should in any case be deferred until the completion of the two ongoing data projects.

I. AN OVERVIEW OF WHAT WE HAVE LEARNED

Over the past two years, Jack and I have frequently talked of preparing an overview of what we have learned from the data related projects. It is important to understand why an overview in this field is particularly important. The need for such an overview arises from a particular feature of these projects. The data-related projects in our portfolio were undertaken explicitly in the spirit of "mining" whatever data could be collected, in the hope of getting better measures of distribution and poverty and some understanding of the correlates, and therefore causes, of inequality and poverty. This open-ended approach of first collecting available data and then studying them -- which we justified at the time on the grounds that income distribution data were extremely scarce and relatively understudied -- had one major flaw. The data were not originally designed to provide accurate measures of inequality and poverty, and they were certainly not designed to test particular hypotheses about the causes of inequality.

As a result, the output of the projects typically falls far short of providing definitive, or even very substantial, resolution of the larger issues relating to causes of inequality and poverty. Many of the most important questions cannot be satisfactorily addressed because the available data simply do not contain the relevant information (e.g. we cannot examine

the role of labour market segmentation, the importance of ownership of assets, the role of access to key productive inputs such as credit, life cycle effects, etc.). What these projects have produced is a fairly exhaustive documentation of regularities which can be observed in the available data in several countries. It would be interesting to present (i) an overview of what these regularities are; (ii) to consider whether they provide some basis for generalising about causal factors; and (iii) to identify the types of data which should be collected in order to achieve a better understanding of the problem. Such an overview would be extremely useful and should encompass the ESCAP and ECLA projects, the ECIEL project, the Anand Malaysia study and Chiswick's papers on Thailand.

Quite apart from an overview of the analytical work undertaken in the data-related projects, it is also important to provide a concise statement of what we have learned about the state of income distribution data from the point of view of measuring distribution and poverty. These are quite distinct issues since the data needs for measurement are different from the data needs for analysis. From what I have seen of the output to date, we are in a unique position to document the deficiencies of existing data. While each project provides some particular light on this question, in general the projects have tended to treat this question as a preliminary to the main analysis. A summary statement would be extremely useful. It would certainly provide a valuable basis for embarking on the definition of standards for future data collection -- a task which looms large on the horizon at the moment.

II. TIME SERIES STUDIES

The second area of work we should undertake is a systematic study of changes in distribution, poverty, basic needs fulfillment, etc. over time in selected countries. The data available for time series studies of the past are certainly inadequate but I suspect that there is a set of perhaps six, and at most a dozen, countries for which the available data (including both household surveys and other data sources) provide a valuable basis for studying the past ten to fifteen years. Given the Bank's avowed interest in this area, and its frequent pronouncements on how development has affected welfare, and how it could under alternative policy regimes, it seems to me that a serious commitment for studying the past is essential.

At present, we have a number of initiatives in this area. On the research side there are a few inhouse studies (Ahluwalia on rural poverty in India and poverty in Indonesia, Lluch on Brazil), one external research project underway (Minhas on Sri Lanka, Kerala and Punjab) and one still germinating (Bergsman on Mexico). On the operational side there are some major studies underway (Brazil and Kenya) and several substantial pieces in the context of mission work (Isenmen on Sri Lanka, Bhalla on Korea, Bottelier and Nijhawan on Indonesia). In my view these studies whet the appetite, but in no way substitute for a major research thrust in this area. We need a set of country studies in which each study would be broad based in terms of data used (using multiple data sources and working with access to original data). The studies should attempt to

- (i) Document (and also speculate) on changes in distributions and poverty over time, focussing on both relative and absolute measures and also attempt to track time series behaviour of major socio-economic groupings (small farmers, wage labour in agriculture, nonagricultural unskilled labour, skilled labour, etc.).
- (ii) Relate the patterns of change documented in (i) above to the pattern of development (including, for example, rate of migration and urbanisation, patterns of growth by sector, trends in capital intensity of production in various sectors, institutional changes in the structure of the economy (what happened to small scale farmers, artisans, village industry)).
- (iii) Speculate on policy. I have not thought sufficiently on this subject to outline a suitable methodology. However, taking a leaf from the trade literature, we should be able to relate policy frameworks to patterns of production which are encouraged by the policy framework and, thence, to distributional consequences. Bagicha Minhas' research proposal will provide guidance on some of these questions also.

There are obvious similarities between this proposal and the ideas outlined in Bell's note. However, it may be now useful at this stage to emphasise the differences. Bell suggests we begin with a theory of economic structure and dynamics and study recent history from the point of view of such a theory. My proposal calls for a more humdrum approach which begins with documenting and describing. As Bell points out the two are very strongly complementary. I would urge that we begin work on the documentation right away.

Industry

Semifinal version

(Final version due March 31)

REPORT BY WORLD BANK PANEL ON INDUSTRIALIZATION AND TRADE

by

Edmar L. Bacha, Gerardo M. Bueno, Juergen B. Donges, Jae-Ik Kim,
Assar Lindbeck (chairman), Richard R. Nelson and Kirit Parikh.

February 20, 1979

II:3 Future Research Priorities

We have argued in Chapter I that the choice of future research priorities has to be based both on the development strategies actually pursued by member countries and on some assumptions ("vision") about what are the most important forces and mechanisms of economic development in these countries. The diversity of the economic institutions and policies of member countries, and of the views about the development process, suggest a rather "pluralistic" research program of the Bank.

We have suggested four general principles (motives) of Bank research:

- a) To contribute to the research knowledge in the world about the development process; a "comparative advantage approach" is then adequate.
- b) To improve upon the research knowledge that is needed for Bank operations and policies; a "residual supply of research approach" is then adequate.
- c) To create externalities within the Bank for its operational and policy formulating staff in generating a more analytical view of the problems and an increased level of "sophistication".
- d) To help generate research knowledge and research capacity in the LDCs.

This means that recommendations regarding future research priorities must rest on subjective judgements regarding a number of matters, including the importance of different kinds of research in enhancing general understanding of development processes, the comparative advantage of the Bank in

different kinds of research, Bank needs and LDC needs for certain kinds of studies to enhance their decision-making ability, the kind of research that is likely to attract and hold excellent scholars at the Bank, and the kind of research most amenable to cooperative endeavors between the Bank and LDC institutions.

As we have seen in Chapter I, the different principles suggest somewhat different priorities, strategies and procedures of research within the Bank. However, in reality, it is of course not advisable to choose one of them but rather to make compromises between them. If we would emphasize some aspects of such a compromise more than others, we would suggest that research is concentrated in fields where

- (1) knowledge is particularly strongly needed for Bank lending and policy advising;
- (2) the Bank in its operations acquire research competence that is unique;
- (3) a strong research organization and a system of follow-up research, mainly in the case of large projects, are required.

Needless to say, a basic requirement in all three cases is that the Bank has, or is able to hire, highly competent researchers.

Appendix I presents rather detailed views about the kinds of research that, according to our view, ought to be cut back and the kinds that ought to be augmented, for each of the six broad fields of evaluation. Here we attempt only a rather general and less detailed statement of research priorities. As a preliminary way of inserting

some substance into the rather general principles presented above, it may be useful to consider first the possibilities of freeing research resources from previous research areas, and thereafter to consider areas into which we recommend the Bank to put more resources.

We think that there are certain lines of research at the Bank which in the past have been forceful and productive, but which now are running into diminishing returns. These include such traditional and successful Bank research fields as research on rates of effective protection or subsidy, and on patterns of growth and development. In both of these fields Bank research has broken new ground, but the ground now is well broken.

In the case of research on trade policy incentives, it is reasonable to argue that the research phase is now largely over, and that what remains to be done are further applications - by including more countries, and by updating previous calculations. However, the resources for these activities should, in our judgement, not be taken from the research budget, but either from the budget for operations and policy formation of the Bank, or from a special (separate) budget to be allocated to the regions and the other operating units for applications of research after the "pure" research phase is over. Otherwise the suggested research units for application would perhaps not be able to shield their resources from the demand of operations work.

Similarly, while Bank research on patterns of growth and sources of growth, based on regression and input-output analysis, have been useful and illuminating, it is unlikely that much new will be learned from doing more of these studies, or from doing them in a slightly different and more sophisticated way. Thus, the studies of patterns and sources of

growth are also mainly completed, or near completion. However, it is not clear if these studies lend themselves to application for the use by operation staff; the studies have perhaps mainly served to improve rather general knowledge about the development process.

We also propose that Bank research exploring the range of technical choice and opportunities for capital-labor substitution has run into diminishing returns. The basic points have been well documented. It is unlikely that doing more studies would add much to ability to persuade people that in fact the range of choice is quite wide, and that it matters what choices are made. The Bank lending departments need to be able to do these kinds of studies themselves in the context of exploration of the range of choices available for particular investment programs they are contemplating, and to educate and persuade borrowing governments or governmental agencies about the range of choice. We propose that this body of work, like the work on effective protection rates, should be moved out of research and moved into applicants.

We have the same judgement regarding Bank research on process industry investment programming, though some "software" development is necessary to make applications more routinized. What is needed now is for the operating departments to develop the capability to work with the models.

In the case of both labor capital-substitutions and process industry programming, the work on applications should probably not be done in the regions but rather in some more centrally located unit in the Bank - considering the size and complexity of analysis of this type.

The Panel is somewhat divided regarding whether or not the Bank should cut back on its research on programming models for non-process industries, and the economy-wide models based on a computable general equilibrium framework. Most of us doubt that these bodies of research will contribute much directly to understanding relevant to policy-making. We believe that an understanding of the development process requires mainly other types of knowledge than is likely to be acquired by these projects. Thus, the majority of us are rather skeptical about the fruitfulness of this type of research, relative to some other fields.

It may be useful if we spelled out the grounds for our skepticism. General equilibrium models have obvious and important attractions as instruments of economy wide economic analysis. They have the advantage of making explicit the interconnections among economic activities and the complex and not always immediately obvious relations between prices and quantities. But associated with these advantages, the large scale compatible general equilibrium models have two disadvantages, which, in the view of this Panel, weighs heavily against them.

One is that these models tend to be so complex that the quantitative conclusions that come from them are not easy to understand, and thus are difficult to evaluate and modify in light of knowledge about what the model leaves out or oversimplifies. Second, the equilibrium character of these models makes it very difficult to deal in a non-mechanical way with the fact and the consequences of technical and institutional changes which, we believe, are the prime driving forces in economic development. These changes can be built into the model, but mechanically. Our concern is that economic development is an inherently disequilibrium process and this is basically what the model represses.

We recognize that not all economists share our views on these matters. We also believe it important that the Bank

stay up with new trends in development economics, and the use of computable general equilibrium models may be such a trend. Also some of the Bank's most highly trained economists are interested in this work. These arguments make some of the Panel reluctant to urge that the Bank withdraw from the field, and willing to urge continuing support of a low lost effort. But the Panel is unanimous that the most important research topics lie elsewhere.

We think there are several broad fields of research to which the Bank should allocate more resources. These include, first, a set of topics related to exports of the LDCs evolving patterns of international trade, and policies of LDCs that reflect trade opportunities and constraints. Second, a set of topics concerned with economic institutions and domestic economic policies that facilitate or deter development. Third, research relating to adoption of technology, innovation, and technical change in developing countries.

a) Topics Related to Trade

Over the years the Bank has built up a comparative advantage in research relating to LDC trade patterns and policies. Research in these fields has contributed importantly to policy thinking within the Bank, and has been sensitive to policy questions, thus also meeting the "residual supplier" criterion. The research that we recommend below represent continuation and strengthening of work now underway at the Bank.

We believe that Bank research on export promotion policies and market access should be continued and expanded. We think particular emphasis should be placed on studying evolving trade patterns, with special focus on inter LDC trade. Productive areas of research include cost-benefit analyses of inter-regional trade in the framework of preferential agreements, an evaluation of different avenues of economic integration as well as an assessment of the prospects for such an integration, and the effects of common financial institutions on investment patterns.

We also feel that there is a need for a more systematic differentiation among LDCs with regard to industrial growth paths, trade patterns and policies to support them. The analyses should focus on three groups of countries: those which are rich in natural resources, those which are just beginning their industrialization, and those which are still extremely poor and have not yet started in developing manufacturing activities. These groups of countries are characterized by significant differences in terms of domestic saving potential, labor skills, entrepreneurship, economic structure, export orientation, the role of direct foreign investment, etc. The development model of semi-industrial economics in Latin American and East Asia, extensively studied in the past, does not cover the wide range of issues which the "late starting" LDCs must face. By analyzing them in depth, country and sector work in the Bank will obtain firmer operational guidance. In this connection, the research should also provide insight into the prospects of these "late starters" for self-sustained economic growth and successful integration into the world economy; and it should assess the (potential) advantages and disadvantages of pursuing the "basic needs" approach combined with a strategy of (total or selective) "delinking" from the international economic system, as forcefully advocated for in some respectable quarters.

We have also seriously considered the idea that the Bank should launch a major research effort to the question of adjustment mechanisms in connection to the reallocation of resources in the developed countries in response to changes in technologies, preferences and comparative advantages in the world economy. A main reason for such a research effort would be that one of the main things that the developed countries could do for the less developed countries is just to adjust their own economies to the export efforts of the LDCs, to provide access to markets for these exports. However, we believe that the DCs should really themselves do this type of research. Our recommendation on this issue is therefore

that the World Bank strongly advise the developed countries themselves to give high priority to research on reallocation of resources and adjustment policies in the DCs, rather than that the World Bank move heavily into that area.

b) Topics Related to Internal Policies and Institutions

As with research on LDC trade, the World Bank over the years has been a leading institution doing research on the distortions to economic allocation and deterrence to economic efficiency associated with protection of domestic industry from external competition. We believe the time now is ripe for the Bank to shift the focus from the domestic effects of tariff policies to more general consideration of how policies and institutions influence resource allocation and efficiency within a country. We propose that such research fruitfully can exploit the comparative advantage of the Bank in doing comparative country studies.

Earlier work on capital utilization and capital-labor substitution led to a recognition that factor market conditions played an important role in influencing choices. In turn, labor and capital markets are strongly influenced by a variety of government policies. These policies, for example labor legislation, and policies imbedded in financial institutions, warrant considerable study on a comparative basis.

We think the Bank should venture into study of industrial organization in LDCs and exploration of the effect of different kinds of policies on organizations and on economic performance. Many LDCs engage in price control activities, and other forms of price and input regulation. It would be fruitful, we believe, to examine the effect of these within the methodologies used to study the effects of regulation in developed countries. Bank research on small scale enterprise is evolving to consider the effects of controlled markets and imperfect markets more generally on the viability of small firms. We endorse this research. We think it would be fruitful to study more generally whether it is economies of scale or market imperfections, that support the monopolistic or tight oligopolistic structures that mark many LDC industries.

Moreover, in many less developed countries, public enterprises are common in the provision of transport, power, and a variety of other public services. Many countries are also employing public enterprise for the production of manufactured goods, particularly when significant economies of scale are involved. The question of the relationship of public enterprise with other industries and with government pricing and incentive policies, and more general issues relating to management and investment planning in public enterprises, strikes us as important to study, probably in a country- or industry-specific context. The World Bank has initiated some research in this field. We urge that the field be given quite high priority.

c) Topics Related to Innovation, Entrepreneurship, and
Technological Change

Earlier we expressed our belief that economic development must be understood as a process involving technological advance in an essential way. Bank research on capital labor substitution, and appropriate technology, increasingly is recognizing this. We recommend that the Bank explicitly and self-consciously do research on mechanisms of technology transfer, adaptation of technology to better fit local economic conditions, innovation in industry in less developed countries, and the policies and institutions that support and stimulate technological progressivity.

Bank research in several different areas increasingly has come to recognize that choice and implementation of technologies is a much more active and creative process than sometimes presumed. A considerable amount of redesign, adaptation and learning often is involved in "technology transfer". Several recent studies have shown domestically adapted or invented technologies to be playing a significant role in growth of productivity in manufacturing industries in certain less developed countries, and to be occurring in exports. We think that the Bank should join more actively and provide greater support for research trying to understand and better characterize the nature of the processes involved.

A number of important policy questions are at stake. For example, it would seem to be important to know the extent to which having a number of well-trained engineers in a company facilitates their choice of techniques, adaptation, and innovation. One can go on to probe regarding the kind of training that effective engineers have had, and to ask whether this is the kind of training that is going on within a country's engineering schools.

It is important to gain a better understanding of what kinds of firms are adapting and innovating most successfully. Do they tend to be small, medium size or large? Do small innovative firms tend to grow larger? Are there differences between domestically owned firms and subsidiaries of foreign corporations? Between private and public firms? We think it of high priority that the Bank begin to study these questions.

Among the important policy and institutional topics for study, examination of a set of issues relating to entrepreneurship strikes the Panel as particularly important. This is not only a field of industrial organization - including issues such as market structure, types of competition, and the supply of equity capital - but also a sociological problem concerning attitudes to entrepreneurship in society.

To summarize our recommendations about future research priorities, we think that the three broad areas described above - international trade patterns and inter-LDC trade; studies of factor market distortions, policies and institutions (comparative studies); and study of entrepreneurship and processes of adaptation and innovation - delineate the broad areas to which the Bank should be allocating more of its research resources.

If the Bank does decide to increase significantly its research efforts in certain new fields, our observations about the kinds of research that the Bank has in the past done well and poorly might be kept in mind. The projects chosen should involve a blend of analytical and policy questions. And there must be a senior researcher at the

Bank knowledgeable about and interested in the research. Some of the new departures we suggest represent natural evolution of the research and interests of researchers currently at the Bank. But we believe that to design and carry out the research well the Bank is going to need some new research talent with skills presently not well represented at the Bank. We recommend strongly that the Bank hire some first rate researchers with experience in analyzing questions of industrial organization and technical advance. Where senior Bank researchers are moving over into a field, the appointments can be made at the junior level. But we suspect some new senior appointments would be very helpful.

To facilitate the design of some of the new projects, the Bank might consider establishing groups of consultants to discuss with Bank researchers the existing state of research in fields that the Bank is entering, to help identify promising research opportunities, and methodologies. But while such consultative groups can help the Bank get into a field, over the long run there is no substitute for strong in-house talent.

To avoid that research in the new fields which are recommended here ends up with descriptions of institutions and policies that do not lead to generalizations, we would recommend new research departures with a wide relevance, promising reproducibility of the results.

Even though we have suggested that some research areas now are mature for application, that others should perhaps be phased out, and finally that other types of research should not be "moved into", it is obvious that our suggestions would require a somewhat larger research budget in the field of industry and trade. However, we believe that this would be worthwhile for the Bank, considering how important it is that the Bank has the highest possible competence in the field of its activities, among which operations related to industrialization and trade are prominent. It is, we believe, the competence of the Bank,

rather than its lending volume, that will count for its contribution to the economies of the less developed countries.

Against this background, it is not unreasonable to increase the number of scholars of the Bank in this field with at least a handful of highly competent persons. This is, in fact, a prerequisite for shifting research to the areas which, according to our opinion, should be given higher priority in the future than in the past. It will, of course, be the size of these new resources that sets the limits for how many new departures may be envisaged.

February 5, 1979

Second Interim Report of the
Industry and Trade Research Steering Group*

1. — The Industry and Trade Research Steering Group includes representatives from some of the major producers and consumers of Bank research in these areas. When formed in May 1978, it was given the following functions:^{1/}

1. To consider and define research priorities in the industrial development/trade area for the next three to four years;
2. To make recommendations as to the operational application of Bank research on industry and trade;
3. To act as liaison with the External Panel on Research in Industrial Development and Trade.

This report summarizes the Group's conclusions concerning research priorities and the relation of research to operations. It is timed to precede the final round of discussion with members of the External Panel.

2. The Group's findings and recommendations are discussed below under four major headings:

- a) Relation to Operations;
- b) Topical Areas;

^{1/} Memorandum from Hollis B. Chenery and David L. Gordon dated May 26, 1978. The Group was also given the responsibility to advise the Research Committee as well as to provide liaison with the Industrial Development Coordinating Committee on matters concerned with research and its relation to operational needs.

* The Group consists of:

David L. Gordon, Director, IDF -- Chairman
Bela Balassa, DRC
Hans Fuchs, Director, IPD
Ravi Gulhati, Chief Economist, EAN
Frederick T. Moore, IDF
Richard W. Richardson, Director, CDD (IFC)
Bevan Waide, Chief Economist, ASA
Larry E. Westphal, DED

- c) Level of Activity; and
- d) Organization of Activity.

Relation to Operations

3. It is generally agreed that a great deal more could and should be done to increase the utility of research on industry and trade to operations. The problem does not relate only to RPO research; equally, if not more, important is the fact that relevant research done outside the Bank is not effectively utilized. Nor is enough being done to develop or exploit research capability in the Bank's client institutions (see below, para 29).

4. Although many research projects have been developed with operational objectives in mind and with considerable effort in dissemination, the bulk of research in the trade and industry area has aimed primarily at reaching academic standards and has mainly been disseminated through publication in journals or technical monographs. While operational applications have been limited, high standards of Bank research, along with the Bank's reputation for research quality, has enabled it to attract some of the world's best talents in areas where its research has concentrated. Adding to the attraction is the prospect of being able to do research on policy issues of operational consequence. The Bank's continuing ability to recruit and retain a research staff of high quality and motivation will depend in part on how the Bank manages its research activity.

5. Two additional points deserve mention. First, the Research Committee provides a mechanism for attempting to insure that research is directed toward appropriate ends. The mechanism has worked reasonably well, at least insofar as the Group does not consider that there has been any major misdirection of research in terms of the topics covered, although the

Committee has served primarily as a filter rather than a provider of guidance on research directions. Greater attention needs to be paid to achieving a proper balance among the mix of research activities, particularly a more effective application of research in operations. Second, notwithstanding the academic orientation of a major portion of their dissemination effort, researchers have sought in various ways to bring out the potential relevance of their research and to promote its utilization in Bank operations and in member countries' policy analyses.

6. In addition to circulation and discussion of research reports, a principal means of dissemination within the Bank has been through the involvement of researchers in operational missions; such involvement increasingly takes the form of a "demonstration effort", designed to provide an example of how to approach a particular problem or set of issues. This form of dissemination is hampered, however, by our having too few researchers to "spread around;" the demand for the specialized expertise embodied in the Bank's researchers far exceeds the supply, and there is no budget provision for research applications. Understandably, operational staff seeking help for a particular country or problem want more than reference to a past, present, or forthcoming demonstration effort done elsewhere. Episodic consultation by research staff has worked well in some cases, but has so far been practiced rather infrequently.

7. Research to academic standards requires long gestation periods for production of the initial output. There is often failure to communicate results in what operational staff consider to be an accessible form. Both problems may be traced in part to the way in which research is managed, which is to say that they are not inherent in the nature of much of the RPO research that is done. In many cases, research is preempted by other non-RPO

tasks given high priority in the short run. This interrupts the continuity and interferes with the timely completion of research. If more time and effort is to be devoted to dissemination within the Bank, either the research and related support staff (see below) must be expanded, current forms of publication will have to be given lesser priority, or the number of projects undertaken must be cut back.

8. The problem is not simply one of dissemination. Operational staff are frequently not as familiar as they should be, judged by their own criteria, with research products that are targeted specifically to their needs. Here too the problem is one of time pressure in the face of multiple tasks. Moreover, the absence of feedback from operational to research staff impedes progress in designing efficient means of communication and eventual assimilation.

9. Effective assimilation of research into operations requires more than the preparation of communicative reports of findings. Much of the case study research focused on policy issues could usefully be replicated in areas outside the original sample, in the context of operational work; this may call for design of short-cut procedures and would be greatly facilitated by the preparation of "manuals" to expound various aspects of appropriate methodology.

10. In the current situation, operational staff do not have the time to replicate policy-focused case study research; or to apply quantitative methods developed through research; or even to identify issues on which probing analysis is both required and feasible, or -- given the issue -- to select the proper mode of analysis and supervise its implementation. Under existing staff constraints, most of the deeper analysis that should be done would have to be carried out either by non-operational staff or by consultants.

Moreover, operational staff are often not well informed regarding studies of specific policy issues that would be highly relevant to operations in particular countries.

11. Operational staff naturally have a strong desire that research staff do more to increase the assimilation of world-wide research and the utilization of external research resources in the Bank's country economic and sector work. Given staff constraints this objective competes with direct research efforts. The Group agrees that a substantial increase is warranted in the resources devoted to assimilation and utilization. But if this is not to be at the expense of direct research, it will require considerable expansion of the staff working on industry and trade.

12. Individual RPC research undertakings fall along a spectrum, in terms of their distance from potential operational application. But closeness to such application is not a wholly valid criterion for research project selection. Operational application may be circuitous, the Bank using work done elsewhere that was prompted, made possible or reinforced through original research by the Bank. Moreover, not all issues of fundamental concern are amenable to research at a short distance from operational application; research to improve methodologies and to test conventional assumptions about underlying phenomena is considered furthest from operational application, but may have a high long-term payoff.

13. Finally, it must be recognized that RPO research is but one of a number of related activities that support operations through one means or another. The most notable example of other support activities felt to be greatly beneficial to operations is information gathering, synthesis, and reporting in the areas of trade in manufactures, keeping tabs on a range of specific industries, and (now being initiated on a systematic, world-wide

basis) the compilation and analysis of data on DFC subprojects. In relation to the Bank's own operational needs, insufficient resources are allocated to this type of activity.

Topical Areas

14. The Group has reviewed past research and priorities for future research according to the topical headings used by the External Panel. Memoranda prepared for discussion are available, as is the summary contained in the Group's interim report for discussion with the External Panel. A somewhat different set of topical headings is employed in this report.

15. The Group does not feel it should try to identify individual, high priority RPO projects for the future -- which generally require considerable further work to define them satisfactorily -- so that this report deals primarily with emphasis or allocation among topical areas. The Bank's understanding of the issues under the various headings has progressively evolved. Detailed priorities are clearest in those areas where work has progressed the farthest, but priorities among broad areas tend to favor those in which the work has progressed least (if at all). The background documents referred to above may be consulted for more specific discussion of some project priorities. By the same token, there is a critical need to crystalize researchable projects in other areas.

16. The following discussion consists of a listing of topical areas, with a brief description of the contents of each and an indication of priority for future work. A summary is provided at the end.

17. Industrial Organization/Management: The Bank has only recently initiated substantial research under this heading. Moreover, out of a vast field, only two sub-topics are being addressed at present.

- (a) Small Scale Enterprises: A major effort is underway to obtain an analytically-focused description of small scale enterprises, their dynamics and relationships with other industrial or financial entities, in a number of countries. The project is seriously

understaffed, especially in view of demand for the participating researchers' involvement in operational missions. There is need for further research to a rigorous professional standard, particularly on the relationship of small/medium with large enterprises.

- (b) Public Enterprises. Problems of public enterprise performance are widespread and serious, a continual source of concern in many areas of Bank operations. It is not easy, however, to define research topics that would yield results of general application. A modest project is in progress, focused on managerial efficiency. As a prelude to any new research initiatives in this field -- apart from the continuing attention it received in country economic, sector and project work -- it would be desirable for the Bank to review in ^{more} ~~some~~ depth the research going on elsewhere; and perhaps perhaps to convene a panel, including outside specialists, to identify specific needs and comparative advantage for research by the Bank.

18. Industrial Technology: There has for some time been a small but stable commitment of research resources to technological issues. The smallness of the research staff has impeded interaction with operational staff, to the detriment of the dialogue essential for effective dissemination. Steps have been taken to rectify the situation, but the problem of insufficient manpower remains.

- (a) Capacity Utilization: No further research per se is proposed in this field. However, the results of past Bank and outside research are not well known to operational staff. There is a need to produce one or several reports summarizing past research in terms that will maximize its potential usefulness in the conduct of country economic and sector work.

(b) Technology Policy: In addition to several intensive studies of technological choice in a few selected industrial activities, a review of worldwide research has been undertaken to determine policy implications, especially as regards employment. While identification of priorities for further research awaits final discussion of this review among Bank staff, it seems likely that new research should emphasize the means of supporting institutions (especially those solidly based within developing countries) to acquire access to appropriate technologies and to strengthen the indigenous technological base. In any event, top priority in this area attaches to strengthening the dialogue between research and operational staff.

(c) Technological Change: The Bank has not sponsored research in this area, though some operational work aims at fostering technological change. The design of appropriate topics for research that could eventually guide Bank lending in this field, deserves priority attention.

19. Industrial Support Institutions: To date, there has been little research within the Bank on the design of supporting institutions which provide credit, technical assistance, and the like; until recently the focus of most of this work has been on credit.

(a) Industrial Financing: Much of the Bank's work on credit markets is relevant, although not focused on industry per se. Research on the role of informal credit institutions has recently begun. Likewise research on transaction costs for industrial financing of different categories, and simplified credit scoring procedures. More work on credit institutions, criteria and procedures, and their results, will undoubtedly be indicated.

(b) Technical Assistance and Advisory Services: A study has been started to examine the functioning of the Technical Consultancy Organizations established in India by financial institutions. On the other hand, a proposal to study the need for a "Technology Referral Service" was recently turned down by the Research Committee. The SSE research project (17(a) above), which will also throw light on access to and choice of technology (18(b)) should help to define the role of industrial extension services and the needs for further research in this area.

(c) Entrepreneurial Development: The Bank has undertaken no studies on this subject, but clearly it is an important factor in the industrialization process. Here too (as with 17(b) above) it appears that a review of work done elsewhere is needed to determine what is the proper role for Bank research.

20. Trade in Manufactures: The Bank has an extensive body of work under this heading, including both formal research and informal collecting, synthesis, and reporting. Continuation of such work deserves priority, to take advantage of the analytical base established and to provide important information to the operating staff.

(a) Trend Reporting: There is a clear need to allocate staff on a regular basis to monitor recent and past trends, and to make projections, owing to the absence of adequate up-to-date information from other sources. There is equally a need to evaluate medium-run trends among industries and across countries. To the extent possible, continued efforts should be made to document trends in trade in relation to those in capacity and production on a global basis. Further work in this area needs to be closely

coordinated with that on industry studies (para 23 below), on which it must rely heavily for detailed analysis of individual industries.

- (b) Market Access: Several major projects are in progress, while a welcome effort is being taken to establish up-to-date monitoring capability. Pending results, no further initiatives seem to be needed except the work implicit in the conduct of industry studies.
- (c) Institutions/Marketing: Research has recently been started on the institutional circumstances that facilitate manufactured exports. Further work may be warranted, depending upon the outcome of this research.
- (d) Inter-LDC Trade: There are several possible areas of research on economic integration, among which the experience of developing countries with product specialization areas is the most promising. Greater interest attaches, however, to the future prospects for trade among developing countries in general that would take place in response to market incentives. Research in this area may be carried out in the framework of a projected study on world trade in manufactures to be considered below.

21. Industrial Strategy/Policy: This has been the subject of most of the Bank's past research on industry and trade. As regards the role of trade and trade policies, further research does not appear to be urgent. Rather, priority should be placed on making use of past research in country economic and sector work -- which entails further case study replication, using short-cut methods when appropriate. There is, however, need for research on other aspects of industrial strategy and overall policy, in particular

those relating to employment and labor markets as well as technology.

- (a) Incentive Policies/Domestic Resource Costs: This is doubtless the best researched of all sub-topics in the Bank's portfolio. However, the work needs to be extended to cover countries rich in natural resources, and those just beginning the process of industrialization. These and other extensions, and especially further application of the research, can now best take place in the context of country economic and sector work.
- (b) Export Promotion: The on-going project concerned with export incentives and the welfare effects of export promotion may be considered to fall under the previous sub-topic; and there should be continued application through country economic and sector work.
- (c) Employment and Labor Markets: Insufficient attention has been given to the operation of labor markets in developing countries. Work on small scale enterprises represents a very modest start toward understanding of possible employment enhancement. Attention should further be given to the existence of labor market distortions, in particular those caused by government action, and their effects on employment opportunities.

22. Comparative Advantage, Patterns of Industrialization and Trade, Economic Growth: Work is nearing completion on two projects which provide information regarding patterns of industrial growth and structural change. Apart from the updating that is implicit in trend reporting, no further research appears warranted to follow up these projects. A more ambitious project involving general equilibrium modeling was recently initiated; the

scheduled review of progress at mid-term will provide an opportunity to assess its promise more concretely. Finally, there is need to examine the factors determining comparative advantage, with a view to analysing prospective changes in the structure of world trade in manufactured goods.

23. Industrial Programming: There has been only one RPO concerned with methodologies for project selection specifically in the industrial sectors.

(a) Project Programming: A long standing RPO has refined the use of mixed integer programming to analyze alternatives as regards location, scale, timing and design of inter-connected projects within individual sub-sectors. Application is furthest advanced for fertilizers. The methodology appears to have proven relevance for sub-sectoral analysis, and it is time that provisions be made for application within as well as outside the Bank.

(b) Project Appraisal Criteria: While various limitations in the use of conventional criteria are recognized and criticized, proposals for further research into methods of project identification, design, and/or appraisal have not been forthcoming. Lacking specific operational staff proposals for work in this area, the Group, while accepting its potential importance, is inclined to postpone its consideration.

24. Industry Studies: Industry studies to keep up-to-date on developments in particular sub-sectors constitute an on-going activity of the Industrial Projects Department. Coverage is greatest and documentation for general staff use is most extensive for fertilizer. Other units have worked episodically on a few selected industries, including steel, textiles, clothing,

electronics, and machinery. Policy advice in regard to specific sub-sectors, not to mention project work, requires continuing analysis of changes in technologies, cost, market and business strategies. Additional resources are needed to put industry studies on a more regular basis, with more documentation for general use. Extension of the work on basic intermediate products, such as steel, chemicals and pulp and paper, deserves high priority. There is a wide consensus also that the engineering industries deserve a strong research effort.

25. Country Studies: Several in-depth analyses of particular issues concerned with industrialization, extending and intensifying normal country economic and sector work, have been undertaken, a few financed by the Research Committee. Intensive country studies focusing on industrial sector conditions and issues do not always require Research Committee funding, but they do require resources -- particularly Bank staff, at least to identify issues and oversee and/or absorb the studies.

Level of Activity

26. The appropriate level of resources to be allocated to research needs to be viewed in the context of all activity that supports country economic, sector and project work in one way or another. It cannot be assessed in the absence of a Bank strategy for the continual improvement of the informational and analytical basis of its operations. This strategy must, on the one hand, consider how the Bank can make use of worldwide research; and, on the other, take account of the Bank's role in assisting its member countries to improve the basis for policy formulation and project implementation.

27. The Group cannot undertake to pose and evaluate alternative strategies with respect to the role of the Bank vis-a-vis the efforts of its member countries. It simply assumes a modest increase in Bank resources devoted to undertaking studies, in the context of country economic, sector and project work, to improve the basis for policy formulation and project implementation in specific member countries. It urges, moreover, that opportunities be explored to enlist and enhance the research interest, capability and resources that exist in a number of the Bank's more sophisticated DFC and other clients, by helping them to design and carry out studies of high professional standard and relevance for industry and trade policy.

28. The Group is most concerned with what can be done to improve the informational and analytical basis for the Bank's own operations. Over the past decade, the Bank has successfully established a staff that does research, but too few resources have been devoted to achieving the effective use of research (whether Bank or otherwise) in operations. Owing to the pressures on operational staff, most of the burden of promoting the use of research has fallen on the research staff. The research staff working on industry and trade

is too small simultaneously to do research of high academic quality, to engage in other support activities including the application of research, and to promote access to and use of world wide research in these areas; consequently, additional staff to assist in the latter two functions are required.

29. It is the view of the Group that highest priority should be placed on providing access to and facilitating use of research--which might entail a sharp reduction in research to an academic standard if the current level of central staff (and complementary) resources cannot be increased. However, the Group recommends that resources should be increased, to permit continued high standard research in specific areas of primary concern to the Bank's operations. This recommendation is based on the Bank's strong comparative advantage in this kind of research, which derives ultimately from the physical proximity of researchers to operational staff and the interchanges of information and ideas that are thereby promoted.

Conclusions

30. The Group has recommendations relating to particular areas in the industry and trade field. These recommendations are summarized in Table 1 where an indication of the staffing implications of the recommendations for central staff (DPS and CPS) is also provided. Furthermore, Table 2 shows the size of existing and proposed staff for research-related activities in central units.

31. The recommendations would entail maintaining the size of existing professional staff in research on industry and trade, with a reallocation taking place among the individual areas. The Group does not suggest that any ongoing research be abandoned abruptly. Indeed, it assigns highest priority to completing research now underway, so that the lessons it has to offer may be learned and put into practice. Correspondingly, the pace at which the

shift in focus can be achieved depends upon the rate at which existing research is completed.

32. At the same time, increases are recommended in the size of central professional staff that is engaged in research-related activities in support of Bank operations. All in all the total number of professional staff engaged in research-related activities on industry and trade and located in central units would rise from 20 to 30.

33. Under the recommendations made, research-related activities would also be undertaken by the Regional Offices. Such work might relate to any of the areas of industry and trade considered above. As the needs of the individual regions vary, the staffing requirements are indicated only for the industry and trade area as a whole. Providing the resources are actually earmarked for these activities, two professional staff members per region might be appropriate.

34. The Group urges that greater use be made of special panels (with external representation) in determining priorities and defining research topics within the broad categories listed earlier. Experience suggests that researchers have an understandable tendency to underestimate the feasibility and potential benefits of research in areas of which they have little specialized knowledge. Thus the recruitment of researchers having backgrounds new to the Bank has stimulated the extension of research into new areas. For areas about which there is uncertainty as to the need or appropriateness of Bank research, special panels could objectively assess whether the Bank would have a comparative advantage; on the other hand, where the need is clear, panels can help to define detailed priorities.

35. Finally, the Group also urges that, where appropriate, research be more directly related to country economic, sector, and project work. At a minimum, efforts should be made to distill major findings from country studies

Table 1

Summary of Recommendations

<u>Topical Area</u>	<u>Principal Recommendation</u>	<u>Staffing Implications</u>
A. Industrial Organization/Management Small Scale Enterprises Public Enterprises	Expand research, operational support Consider need for additional Bank research	Increase present staff None - only one staff at present
B. Industrial Technology Capacity Utilization Choice of Technology Technological Change	Targeted report for operational staff Awaits outcome of current discussions Prepare research program	Use consultant of YP None in short run Requires additional staff
C. Industrial Support Institutions Industrial Financing Extension Services Entrepreneurial Development	Consider need for additional Bank research - same as above - Evaluate need for Bank research)) Likely to require increase in present staff)
D. Trade In Manufactures Trend Reporting Market Access Institutions/Marketing Inter-LDC Trends	Expand present program, put on regular basis Await completion of on-going research - same as above - Consider need for additional Bank research	Increase present staff None in short run - same as above - - same as above -
E. Industrial Strategy/Policy Incentive Policies/Domestic Resource Costs Export Promotion Employment/Labor Markets/Technology) Shift to country studies) Evaluate relevance of existing research) Change staff functions; provide additional) staff for applications as needed Change staff orientation
F. Comparative Advantage, Industrial Structure	Institute research on comparative advantage	Reallocation of staff
G. Industrial Programming Project Programming Project Appraisal Criteria	Determine need for Project Programming Unit No research foreseen at present	Unit would require additional staff None
H. Industry Studies	Expand, put on a more regular basis	Increase present staff
I. Country Studies	Support Regional Offices' Initiatives	Requires additional staff

1
1
60
1

Table 2

Professional Staff Needs in Central Units^{1/}
(professional man-years)

	<u>Existing Staff</u>			<u>Proposed Staff</u>		
	<u>Research</u>	<u>Other</u>	<u>Together</u>	<u>Research</u>	<u>Other</u>	<u>Together</u>
Industrial Organization/Management (incl. small scale enterprise)	2.5	1.0	3.5	4.0	2.0	6.0
*Industrial Technology (incl. technological change)	1.0	-	1.0	2.0	1.0	3.0
*Industrial Support Institutions	0.5	0.5	1.0	2.0	1.0	3.0
Trade in Manufactures	0.5	3.5	4.0	1.0	4.0	5.0
Industrial Strategy/Policy	2.0	1.0	3.0	2.0	3.0	5.0
Comparative Advantage, Pattern of Industry	3.5	-	3.5	1.0	-	1.0
*Industrial Programming	0.5	0.5	1.0	-	2.0	2.0
Industry Studies	-	3.0	3.0	-	5.0	5.0
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTAL	<u>10.5</u>	<u>9.5</u>	<u>20.0</u>	<u>12.0</u>	<u>18.0</u>	<u>30.0</u>

^{1/} Exclusive of regional allocations; country studies are therefore omitted. For details see Annex Table 2.

under particular topical areas and according to a useful typology. As regards project work, closer links may take any number of forms: for example, research ideas may evolve out of selective involvement by researchers in the project cycle, or research may be directed toward learning from past project experience through in-depth ex post evaluation. In the past, the research staff has tended to relate more to country economic and sector work than to project work; the slow trend toward greater balance in this respect could usefully be accelerated.

36. Additional staff in the amount of the greater number shown in Table 2 would permit approximate doubling of existing work in each of the areas except those that are starred, where the increment would be far greater in percentage terms. In all areas, additional staff would be required to put existing work on a regular, sustained basis. At present, a critical mass of research and related support staff resources is lacking in all these areas.

37. The recommended increment to staff working on industry and trade should be allocated to fill the gap between research and its use. Continuing research to an academic standard would then be roughly unchanged in staff resources assigned, while its concentration by topical area would shift over time in accord with the priorities outlined earlier.

Organization of Activity

38. The final report of the Group will contain recommendations on the organization of responsibility for the activity. At this point, the Group has not reached final agreement on the recommendations.

Annex

Allocation of Resources
Devoted to Research-Type Activity
in the Areas of Industry and Trade

This annex provides information regarding the magnitude and composition of Bank resources allocated to research-type activities in the areas of industry and trade in manufactures. The first section discusses the allocation of Research Committee funds; the second, the allocation of professional staff. As regards staff time, separate data are given for RPO research and for other activities that are not directly operational in the sense of being linked to either country economic and sector or project work, but which add to the informational and analytical base of Bank operations.

Research Committee Funds

Research Committee funds pay for consultants and "temporary" research assistants as well as for many other categories of expenditures, such as the cost of undertaking surveys, computer charges, and non-Bank secretarial assistance. To avoid mixing apples and oranges, it would be desirable to separate expenditures from Research Committee funds into at least three categories: consultants and research assistants, each in man-week terms, and other, in money terms. Among other things, this would permit an assessment of the extent to which Bank staff are supplemented by the use of outside researchers. Unfortunately, a breakdown along these lines could not be obtained, owing to the time it would take to search through the individual project files.

Annex Table 1

Allocation of Research Committee Funds^{1/}
(In percent)

	<u>Pre-FY78</u>	<u>FY78 on</u>	<u>Total</u>
A. Industrial Organization and Management	-	11.5	11.5
Small Scale Enterprises	-	8.2	8.2
Public Enterprises	-	3.2	3.2
B. Industrial Technology	10.5	4.5	15.0
Capacity Utilization	3.5	-	3.5
Choice of Technology	7.0	4.5	11.5
Technological Change	-	-	-
C. Industrial Support Institutions	1.1	3.5	4.6
Industrial Financing	1.1	3.5	4.6
Extension Services	-	-	-
Entrepreneurial Development	-	-	-
D. Trade in Manufactures	3.8	28.4	32.2
Trend Reporting	-	-	-
Market Access	2.3	25.3	27.6
Institutions/Marketing	-	3.1	3.1
Economic Integration	-	-	-
Other ^{2/}	1.5	-	1.5
E. Industrial Strategy/Policy	16.7	8.2	24.9
Incentive Policies/Domestic Resource	9.2	.3	9.5
Export Promotion	2.4	3.7	6.1
Comparative Advantage	5.1	4.2	9.3
Employment/Labor Market/Technology	-	-	-
F. Industrial Programming	6.6	1.2	7.8
Project Programming	6.6	1.2	7.8
Project Appraisal Criteria	-	-	-
G. Industry Studies	-	-	-
H. Country Studies	-	3.9	3.9
<u>Total</u>	38.7	61.3	100.0

Source: Annual Reports to the Executive Directors on the World Bank Research Program.

^{1/} Based on figures in current dollars.

^{2/} RPOs 670-07 (International Model) and 670-19 (Expansion in Manufacturing for Exports in Developing Countries).

The Research Committee has allotted a total of \$3.030 million to research on industry and trade. Annex Table 1 shows the allocation of this total among topical areas, with no distinction being made among types of expenditure.^{1/} The data are in current rather than constant dollars. Expenditures are, however, shown separately for pre-FY78 and for FY78 and beyond, to permit an assessment of the shift over time among major topical areas.^{2/}

The data in the table reveal a marked shift over time in the composition of Research Committee funding. A pronounced fall in the shares devoted to industrial technology, industrial/policy, and industrial programming is being offset by a rise in the shares going to industrial organization and management, industrial support institutions, and trade in manufactures. Considering all Research Committee approved projects, one finds that roughly one third of the total funding has been allocated to trade in manufactures and one quarter to industrial strategy/policy. Industrial technology (15 percent), industrial organization and management (11 percent), and industrial programming (8 percent) account for the bulk of the remainder.

^{1/} Included are only those RPOs that fall under the purview of the External Panel on Research in Industrial Development and Trade.

^{2/} For FY79 and beyond, the figures pertain to budget allocations rather than actual expenditures.

Professional Staff Time

A total of approximately 820 professional manweeks per annum is currently being devoted to RPO and other research-type activity in the areas of industry and trade.^{1,2/} As shown in Annex Table 2, RPO research accounts for slightly more than one half of this total. The remainder is spent on other research-type activities, as discussed further below.

RPO Research: Over half of the total professional staff time going into RPO research is focused on industrial strategy and policy. Another quarter is allocated to work on industrial organization and management. Industrial technology (9.3 percent), industrial programming (5.7 percent), trade in manufactures (3.5 percent), and industrial support institutions (3.1 percent) account for the remainder.

The allocation among topical areas of professional staff is not the same as that of Research Committee funds (compare Annex Tables 1 and 2). There are two principal reasons for this. First, staff time continues to be put into projects well after the completion of most (sometimes all) expenditures financed by Research Committee funds, owing to lags in the preparation of draft reports and publications. Second, there is greater reliance on non-Bank researchers in some areas than in others. The use of consultants to substitute for Bank staff is particularly great in RPO research on trade in manufactures and country studies.

1/ It was not possible within the time available to obtain staff time estimates for the period preceding FY78.

2/ This includes only direct time. Thus, to convert to approximate full-time equivalent manyears, divide by 42.

Annex Table 2

Allocation of Professional Staff to Research-Type Activity
Average for FY78/9: Manweeks

	<u>RPO Research^{1/}</u>	<u>Other Research Activities^{2/}</u>	<u>Total</u>
A. Industrial Organization/Management	<u>12.3</u>	<u>5.2</u>	<u>17.5</u>
1. Small Scale Enterprises	11.3	.8	12.1
2. Public Enterprises	1.0	3.9	4.9
3. Other	-	.5	.5
B. Industrial Technology	<u>4.8</u>	<u>1.7</u>	<u>6.5</u>
1. Capacity Utilization	.4	-	.4
2. Choice of Technology	4.4	.5	4.9
3. Technological Change	-	1.2	1.2
C. Industrial Support Institutions	<u>1.6</u>	<u>3.3</u>	<u>4.9</u>
1. Industrial Financing	1.6	1.5	3.1
2. Extension Services	-	1.8	1.8
3. Entrepreneurial Development	-	-	-
D. Trade in Manufactures	<u>1.8</u>	<u>15.9</u>	<u>17.7</u>
1. Trend Reporting	-	11.7	11.7
2. Market Access	.1	4.2	4.3
3. Institutions/Marketing	1.7	-	1.7
4. Economic Integration	-	-	-
E. Industrial Strategy/Policy	<u>27.7</u>	<u>5.6</u>	<u>33.3</u>
1. Incentive Policies/DRCs	4.5	.3	4.8
2. Export Promotion	6.8	.5	7.3
3. Comparative Advantage, Etc.	16.4	.9	17.3
4. Technology	-	3.9	3.9
F. Industrial Programming	<u>2.9</u>	<u>.8</u>	<u>3.7</u>
1. Project Programming	2.9	.2	3.1
2. Project Appraisal Criteria	-	.6	.6
G. Industry Studies	<u>-</u>	<u>16.4</u>	<u>16.4</u>
H. Country Studies	<u>-</u>	<u>-</u>	<u>-</u>
Total	<u>51.1</u>	<u>48.9</u>	<u>100.0</u>

Sources: RPO Research -- Time Reporting System.

Non-RPO -- Information provided by individual units.

^{1/} Includes only RPO's that fall under the purview of the External Panel on Research in Industrial Development and Trade.

^{2/} Includes some RPO research; see accompanying notes.

Other Research Activities: Regardless of the perspective chosen, RPO research is not the only means whereby Bank activities add to the stocks of knowledge and tools of analysis. Determining where to draw the line between operations and research is, however, not easy. Moreover, the broader one's perspective, the more difficult it becomes to assemble data in meaningful breakdowns. With this difficulty specifically in mind, it was decided to exclude all activities of the Regional units, and to concentrate only on the Central units. Correspondingly, work undertaken by the Regional offices on country studies is omitted, whether in the context of country economic or sector analyses. Equally, involvement in Regional work by the Central staffs is excluded, even though it is complementary to the latter's research activity.

Activities that add to the informational and analytical base of Bank operations need not necessarily result in reports written with a more general audience in mind. For example, the Industrial Projects Department (IPD) is continually engaged in industry studies, through information gathering undertaken in connection with project work. But only for a few selected industries (notably fertilizer) are reports prepared that provide ready access to this information by non-IPD staff. Equally, there is a great deal of learning from past project experience that is nowhere recorded in readily accessible form. However, for our purposes, activities are considered to improve the information and analytical base of Bank operations only if they result in written output (not excluding memoranda) that are disseminated for use outside the originating Department.^{1/}

^{1/} Note that the definition of non-RPO research-type activities used here is somewhat broader than that used to identify "Departmental Studies" in the annual reports to the Executive Directors on the World Bank Research Program.

The "Notes to Annex Tables 2 and 3," which appear at the end of this Annex, identify the activities included as non-RPO, or other, research activities. The professional staff time put into these activities is nearly equal to that put into RPO research, but its composition differs considerably. In particular, non-RPO research is more heavily concentrated on industrial support institutions, trade in manufactures, and industry studies. The last two categories each account individually for about one third of the total professional staff time spent on non-RPO research, with industrial strategy and policy (11.5 percent), industrial organization and management (10.6 percent), and industrial support institutions (6.7 percent) constituting the bulk of the remainder.

Location of Activity: Annex Table 3 shows the proportion of total professional staff time accounted for by the various organizational units. As it clearly demonstrates, major involvement in research-type activity is found in several units. The Economics of Industry Division, in the Development Economics Department (DED), contributes slightly more than one third of the total; its activity ranges across most of the topical areas shown in the previous tables. Other major contributors include: the Economic Analysis and Projections Department, largely concentrated on trade in manufactures; the Employment and Rural Development Division (DED), reflecting work on employment and labor markets; the Industrial Projects Department, focused on industry studies; the Public Finance Division (DED), concerned with public enterprises and industrial support institutions; and the Development Research Center, an important locus of work on industrial strategy and policy.

Annex Table 3Staffing of Research-Type Activity
Average for FY78/9: In PercentDevelopment Policy Staff

Development Economics Department	
Economics of Industry	36.1
Employment & Rural Development	11.7
Public Finance	8.6
Economic Analysis and Projections Department	19.6
Development Research Center	7.9

Central Projects Staff

Industrial Development & Finance Department	4.5
Industrial Projects Department	10.4
Project Advisory Staff	
Science & Technology Advisor	*

Other

International Finance Corp.	1.2
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<u>Total</u>	<u>100.0</u>
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* Denotes involvement based largely on consultant inputs.

Caveat

The extent of activity within the Bank which adds to the informational and analytical base of Bank operations in the industrial area is obviously broader than that reflected in the estimates presented here. Our estimates exclude research assistant and consultant inputs, which play an important role in several areas. For example, consultants employed by the Science and Technology Advisor have done a major share of the work on industrial technology policy within the Bank. Equally, our estimates exclude work focused on individual countries as well as the much of that which aims to learn from past project experience. In regard to the latter, for example, post-evaluation undertaken by the Operations Evaluation Department is omitted.

We are nonetheless confident that our estimates reflect reasonably well the extent of resources allocated to providing information usable (and used) across a wide variety of operational needs. By and large, the activities that are excluded result in information that is either obtained primarily for use in the originating unit or is not effectively targeted to a broader set of interests. In turn, we are equally confident as regards the indicated concentration among topical areas.

Notes to Annex Tables 2 and 3

Provided below are shorthand descriptions of the principal activities included as non-RPO research-type activities in Annex Tables 2 and 3. (Note: time spent on inputs to the FY79 World Development Report is not included except in the case of activities that would be on-going in any event.)

Economics Department (Economics of) Industry Division

- B3. Research project generation
- D1 & D2. Non-RPO information collecting, synthesis, and reporting. Work on trade among less developed countries.
- E4. Supervision of papers on employment by J. Stern for Urban Poverty Force.
- G. Trade focused studies of textiles, clothing, footwear, electronics, machinery industries.

Economics Department, Employment (& Rural Development) Division

- A3. Work on rural industrialization.
- E4. RPOs not identified as falling under Industry and Trade Research, but having relevance to questions of industrial strategy, especially as regards employment; rough estimate to reflect only that share of total time spent on industry.

Economics Department (Public) Finance Division

- A1. Research assistant working on RPO 671-59, financial aspects; several small miscellaneous tasks.
- B2. Work on choice of technology by public sector.
- C2. In-house study -- financial structure and technology policy.

(Economic) Analysis and Projections Department

- B1. Continued work by H. Hughes; monograph forthcoming.
- D1. Trade data system and related statistical reporting, analysis. Work on trade among less developed countries.
- D2. Monitoring of protectionist policies in developed countries; supervision of related RPOs.

Notes - Continued

- E. Analysis of primary commodity processing in LDCs; work on trade among less developed countries; joint IBRD-UNIDO monograph on Industrial Development Policy.
- G. Statistical reporting on prices of manufactures.

Development Research Center

- D (all). Continued work by B. Balassa.
- F2. Work on various aspects by G. Pursell

Industrial Projects Department

- A2. Continued work by B. Walstedt.
- B2. Supervision (joint with DED Industry Division) of RPO 671-77.
- G. Studies of fertilizer, pulp & paper, steel mechanical engineering and other industries.

Industrial Development and Finance Department

- A1. Criteria and project identification guidelines for small scale enterprises lending; other work on small scale enterprises, including study of sub-contracting, government procurement, choice of technique in Bank sub-loans, etc.
- A3. Subproject data system.
- B1. Continued work by F. Moore.
- C2. Work on export zones, construction industry, RD&E institutions.
- E. Sector paper on employment and small scale enterprises; industrial policy paper (forthcoming); interest rate issues; involvement on Steering Group.
- F1. Supporting inputs to operational extensions of RPO 670-24.
- G. Studies of mechanical engineering, petroleum, and electronics industries.

Project Advisory Staff

- E5. Work on various aspects of science and technology policy related to industry, mostly by consultants.

Industrial Finance Corporation

- B2. In-house studies of technology choice, including that by M. Amsalem.

Population

Transportation

REPORT
OF
TRANSPORT RESEARCH
REVIEW PANEL

MARCH, 1979

III. FUTURE LINES OF RESEARCH

3.1 The chapter draws up future useful lines of research as the panel sees them to-day. Our ideas on this subject were influenced by three sets of factors: first, the major transport problem areas faced by developing countries which were felt to be researchable; second, the need to better exploit the results of major research now being completed by the Bank and the much larger work of the research community as a whole outside the Bank; and third, the comparative advantage of the Bank in conducting or organizing research.

3.2 The Bank has great comparative advantage for projects summing up available knowledge and its borrowers' relevant project experience in state-of-the-art surveys and review papers on particular issues, with appropriate comparative statistics. The panel feels strongly that such projects should be carried out systematically and much more widely than today. These ideas and others are discussed below. In a few instances the ideas are grouped under the heading of miscellaneous technical guidelines.

A. Highways

3.3 The work on the Highway Design and Maintenance Standards Model (HDM) will be finished during the planning period. The model will greatly help in the choice of relevant standards in road construction and maintenance. Already the weight of problems in road planning is shifting to maintenance and traffic management. In future the panel clearly foresees another shift in planning attention to organisational and administrative problems. The research program reflects this shift on priorities.

3.4 Further work on HDM: The work on HDM should be completed by the addition of data and experiences from Brazil and India. These findings as well as other sources of information may imply some substantial revisions and extensions of the present HDM. But a useful model already exists based on the Kenya study and other available knowledge; both the formal model structure and a user's manual should be published and

widely circulated. Deliberate efforts should be taken to have the model effectively applied. Seminars and systematic training should be carried out. A simplified version, possibly in the form of tables, should be produced for people evaluating e.g. only separate road sections. The earlier publication on quantification of road user savings should be updated, and finally a book on highway design and maintenance economics may be published forming, so to speak, a natural and temporary end to the great effort of evaluating design standards in road construction. Bank staff should stimulate other agencies to carry on further research as necessary to adapt HDM to local conditions, but the Bank should finance such undertakings only as a last resort.

3.5 Maintenance: It is necessary for any country to keep sufficient levels of maintenance on its highways. However, there is an expressed lack of knowledge of the impacts of various maintenance levels and of maintenance components on traffic, traffic conditions and on user costs; the data collected under the Highway Design research to-date makes an important contribution to filling this gap. In many countries maintenance suffers from inefficient organisation and administration. The Panel welcomes the excellent review paper on the main finance problem just completed by the Transportation Department, drawing extensively on past project experience as well as Highway Design research. Further experience in pursuit of the policy emphasis sketched in the paper will probably show particular aspects of the problem which need to be studied in greater depth and will need to be incorporated into the list of priorities at the first time of revision.

3.6 Highway Safety: Highway traffic safety imposes grave problems on all countries that have reached a certain level of motorization. However, it is not at all clear how traffic safety will affect Bank appraisal work and lending procedures. The panel suggests a project to sum up the knowledge on accidents, their possible explanations and measures to reduce them. The project may end up with a program for future work on traffic safety problems. At least it will develop a better basis of knowledge about past research and experience in road safety programs to the benefit of borrowing countries.

3.7 Road User Charges: The issue of relevant road user charges, tax and subsidy structures is an old and important one, on which the Bank has often called for studies by its member countries. Depending on the prevailing policy in a country one may get distortions that may cause severe problems. The panel urges the Bank to embark upon a project that will review past experience in depth, sum up the prevailing policies in selected countries, and evaluate their likely effects.

3.8 Bus and Trucking Industries: Regulation and Organisation: The project will lead to a framework for appraising projects in the fields of bus and truck services and for advising countries on the institutional set-up and regulations of such services (licenses, charges, taxes etc). We note that the Bank more than ten years ago commissioned research on the subject of trucking industry regulation and that it is also now increasingly receiving requests for financial assistance to the road road transport industry. The earlier research needs to be brought down to a more operational level and a methodology evolved for assessing the sacrifice involved in - or economic cost of - regulatory controls as against free market operation. More attention needs to be given to alternative ways of managing and organizing transport companies and their pros and cons, and a better basis developed for the Bank's potentially important participation in assisting countries on development of transport services. The project may also comprise employment and development aspects of the transport industry.

3.9 Miscellaneous technical guidelines: It is vital for the good use of HDM as well as for road planning generally that important factors like present and future traffic and its composition, and road network conditions be known. The Bank should review available literature and propose and disseminate technical notes or guidelines on the best organizational framework and technical procedures to be used in traffic census and forecasting, road inventory methods, etc.

3.10 Traffic Engineering and Management: Congestion on urban and other roads does not necessarily imply investment in new infrastructure. Better traffic management may be the answer, such as the Bank has especially been promoting in urban areas. The Bank should sum up existing knowledge, for the better use of the existing road network. However, considerable caution must be exercised when applying traffic speed/flow or capacity relationships developed in Europe or North America to the very different traffic characteristics of most developing countries. It is to be hoped that the research in Brazil and especially India on traffic flow simulation will lead to improved procedures for dealing with the problems of congestion.

B. Substitution of Labor and Equipment in Civil Construction

3.11 In order to enhance the effectiveness of the investment already made we believe that the study should continue, primarily focussing on the socio-economic impact of labor-intensive programs, at the national and on the local level, on such matters as balance of payments, community integration, income distribution in the areas directly affected, and on the effect of unemployment on development. Also, attention could usefully be given to labor-intensive construction beyond roads and irrigation works. Furthermore, it needs to be taken in account that, given developing countries' typical shortages of foreign exchange for purchasing and repairing equipment and given the scarcity of equipment operators, use of labor-intensive techniques can often substantially increase the total volume of works that can actually be accomplished in a given period. In this way, past research efforts will yield more benefits both for the Bank and member countries, given the low marginal cost of such work. In addition, the Bank has a comparative advantage in exploiting existing experiences from certain countries which at present are implementing labor-intensive policies; brief comprehensive evaluations of these initial efforts should be prepared and disseminated.

3.12 The scope of the study should be broadened by taking low to middle income countries into account. A study which concentrates only on the very poor countries will not arrive at proper solutions for somewhat more advanced countries, mainly because of lack of information and because of the special conditions in many of these countries. Furthermore, it happens that precisely in low to medium

income countries, local consulting firms and institutions have achieved certain technical experiences. They could work not only as efficient suppliers of information but could also be involved in the research process proper. But the main need under this topic is to assist the development of more pilot and demonstration projects in labor-intensive construction in a wider variety of countries that are not at present using such techniques, and to ensure systematic promotion of the handbook, when completed, among member country agencies and consulting firms.

3.13 Domestic Construction Industries: Simultaneously, it would be necessary for the Bank to participate in the implementation of labor-based construction methods, preferably in countries where labor is abundant and where there is a domestic construction industry. It must be kept in mind that labor-intensive works are usually carried out directly by Government agencies on a force account basis with low efficiency rates, which might be substantially augmented if the works were carried out by private enterprise. However, in the majority of developing countries there is no real domestic construction industry, nor are there reliable studies related to its promotion. Therefore, it would be advisable that the Bank help its member countries by conducting research on the feasibility of developing or improving local construction industries.

3.14 For more effective pursuit of the policy established by the Bank in 1974 for explicitly supporting the development of domestic construction industries in borrowing member countries, and as a further broadening of the work on labor-capital substitution in civil construction, reviews are needed, for a sample of about five countries, of the factors inhibiting the growth of the domestic construction industry (of all the various levels of capital-labor intensity appropriate for different types of works) and of the ways in which growth can be effectively stimulated. This would be combined with an assessment of the effectiveness of the various initiatives taken by the Bank in particular countries over the last five years, in order to produce, as early as possible, a position paper on the state of the art in strengthening these industries - in order to provide Government officials and Bank and other agency staff better guidance on planning, implementing

and evaluating programs to strengthen domestic construction capacities. Such a study would need to be coordinated with other departments, in Regions and in Central Projects Staff, such as Industrial Development and Finance, and Education.

C. Ports and Shipping

3.15 Port management needs in developing countries tend to be concerned with the specific rather than the general (e.g. should a certain type of machine be purchased or not). Broader policy questions are usually addressed mostly at the ministerial level. Hence, to meet ports' specific needs (and these are frequently encountered by Bank field staff) research could be done to see if it could be feasible to develop models to provide some answers to these specific questions.

3.16 Simulation of Port Operations: In many loans, debate arises as to the best type of equipment mix to be procured for serving the berths. This is because of the wide variety of handling equipment available in the market. The situation is analogous to that of selecting a suitable fleet of aircraft types to service the various routes taking into account distance travelled, load factor, etc. It would be useful if detailed simulation models could be developed in such a way as to simulate the sub-systems of the port. This would take into account such aspects as berth configuration, depth of back-up space, quality of maintenance of equipment, etc., so that various alternatives could be presented to decision makers as to the mix of equipment to be purchased for servicing present and future traffic.

3.17 Simulation models for exactly these purposes are already in existence for conditions in developed country ports. With the Bank's experience in developing PORTSIM for wide application, it would be possible to study the feasibility of modelling port sub-systems for general application in developing country ports. Ideally, the models to be developed would require few, commonly available parameters to facilitate the use of the models in the widest possible range of situations without loss of validity.

3.18 Port Pricing and Investment Policies in Developing Countries: A general theoretical framework for the application of marginal cost pricing for congestion has now been developed, but there is still a long way to go before the theory can be usefully applied. Work is planned on port accounting systems to see whether they can already produce the information required to apply marginal pricing principles,

3.19 If the pricing approach proposed proves practically feasible and acceptable, then its implications for the programming of investment would merit additional attention. Since traffic can be forecasted and since port facilities are "lumpy" investments, the timing of construction, realization of the "correct" number of berths and acquisition of other equipment to capture the trade is important. Hence future ports research work should aim at developing an easily applied methodology to time increases in port capacity in such a way as to meet the anticipated traffic while maximizing the net present values of revenues to the port.

3.20 Impact of Port Projects on Regional Development: There are two rather different dimensions to this question: (i) port industrial areas, as developed in countries such as France, Ireland and Singapore, with the issue being proper economic and institutional analysis of the interactions between port operations and the industrial activities, and (ii) the impact of containerization and its penetration into the broader port hinterland, with the issue being the distribution of benefits and costs from use of containers and the stimulus they can give to trade. These are major research areas and appropriate methodology which has been used in some developed countries could be examined to see whether it might be applied to developing countries. The results of the research would help Bank staff to better advise developing countries considering port construction and expansion, or the introduction of port manufacturing areas, and contribute to a broader-based and more satisfactory appraisal of projects proposed for Bank financing.

3.21 Structure of Port Management Systems: Many ports in developing countries have ineffective management reporting systems; feedback is poor and long time lags occur between directives and implementation. Many of the problems faced by these ports are management rather than technical problems. The Bank in its review and appraisal of port investment projects already possesses enormous amounts of information and analysis on ports management structures, information and decision systems in various parts of the world. A compilation of this information would be useful. Included in the compilation would be reviews and comparative analysis of Bank experience before and after loans are made and projects implemented. A by-product of this compilation and review could be the identification of the general training needs of port management personnel in developing countries.

3.22 Ocean Shipping Potential for Developing Countries: development of a conceptual framework for a developing country's decision as to whether or not to go into ocean shipping or extend its present participation in this field, with collection of relevant data on countries' actual experience to date. Since this is an area of concern to more and more developing countries, and the Bank has apparently already received various requests for advice, we are pleased to see that the Transportation Department has already started a small amount of work internally on the subject, but we believe that the complexity of the issues involved and the difficulties of obtaining relevant empirical information are likely to require a more ambitious follow-up to the in-house effort in the form of a larger study.

3.23 Coastal Shipping Potential: A review of comparative experience (e.g. Japan, Indonesia, Philippines, India, Madagascar, Brazil) is proposed in this area of considerable potential for many countries but little Bank involvement to-date. This should investigate advantages of, and obstacles to, coastal shipping and explore the scope for relieving the latter. The question of appropriate technology should also be addressed.

3.24 Inland waterways: review of comparative experience (e.g. for Egypt, Panama, Bangladesh, Burma, Belgium/France/Germany, Argentina, Paraguay, Zaire). We understand that a number of projects are coming up in this area for possible Bank financing, but that the Bank does not have any in-house expertise in this field, so that a special effort is needed to review past experience and problems to enable the Bank to better direct the consultants who would be used for operational work.

D. Railways

3.25 The Railways constitute a complex integrated system involving many technologies and management skills. Naturally the interesting suggestions put forward by the Bank staff as to possible research in the Railway field have been very many and of varied scope and importance.

3.26 There is little doubt that the work recently begun on (a) the Economic Role of the Railways and (b) the Railway Model ought to be given the highest priority for continuance and completion. The Economic role study should enable better insights into the modal choice questions and determinants of rail traffic and assist significantly in future Bank Railway sector operations. The rail model should be particularly useful in project evaluation work and coordination of the system effects.

3.27 Many of the suggestions from the regions for future research dealt with specific technical problems. These need to be dealt with in one of the two ways set out in the immediately following paragraphs.

3.28 The CPS is in touch with a good deal of very useful Railway research that is being done outside the Bank. It is doing good work in bringing this to the notice of the regions and this work needs to be continued and increased, with the CPS perhaps issuing occasionally subject-by-subject lists of those studies which are considered of specific usefulness to Bank staff (in other words lists of "recommended reading") on Railway issues which come up frequently in the appraisal of Railway project. Further, the Transportation Department's initiative is to be strongly commended and its effort pursued of developing a "Transportation Resource Person" system in the Railway field for the Bank as a whole (as described in para. 4.4).

3.29 In addition to the above, there is a specific need for the Railway experts of CPS to organize the publication of more "state of the art" or survey papers. The Panel's detailed recommendations as to future research work including work of this character in the field of Railways are mentioned here briefly.

3.30 Comparative Costs of Rail and other Modes: The Panel agrees with the Transportation Department's suggestion for a research study on the above subject combining theoretical and empirical work, to produce better benchmark and analytical frames for this type of analysis. Such work would complement and supplement the ongoing work on the Economic role of the Railways, but, it should be mentioned, may perhaps reveal the need for a more elaborate Phase 2 research later.

3.31 Railway Training Issues: Bank staff have high-lighted as basic in many countries the problems regarding maintenance and operation skills. A study needs to be made of the training systems presently in use in representative countries and recommendations formulated for the guidance of borrowing countries as to how training may be brought up to satisfactory levels.

3.32 Electrification and Dieselisation: The issue as to when electrification of even intensely used rail track/routes is justified rather than continuance with diesel is one of importance. The general issue has been examined in various studies, notably by British Railways and French National Railways. But these have not always been accepted as wholly objective and critical. The Bank should bring together and evaluate what has been studied and examine what more needs to be done. The study should deal inter alia with the energy sources (electric power/diesel oil) used by the two systems and how any changes that can be forecast in their relative prices in real terms over a medium period are likely to affect the question.

3.33 Restructuring Railway Systems - closure of sections/services:

It is well known that there is a financial case in many railway systems for the closure of certain branch lines/stations and abandonment of certain services, perhaps even for a major curtailment of the Railway system. The issue comes up repeatedly in Railway project appraisals in various countries. But few borrowing countries have in fact been able to accept the advice for specific closures; the

experience in developed countries with sections/services which make heavy losses is not very different. However, there have been certain limited successes. Steps which could facilitate closure in appropriate cases have been considered in this context and these include (i) organization of an improvement of services in alternative modes (as regards reliability regularity reasonable cost, etc.); (ii) redundancy payments for labor displaced by closures and schemes for retraining and absorbing them elsewhere; (iii) transfer of financial responsibility for the decision on closure or continuance to the particular regional administration concerned, etc. An in depth case study is needed of the situation in representative countries, (including especially those recording some successes) covering the detailed case for closure or continuance and ways of facilitating and achieving closure in appropriate cases.

3.34 Maintenance and Utilization of Equipment

The Bank's experience with Railway borrowers has shown the overriding importance of the satisfactory maintenance and utilization of equipment. The completed Action Plan Review reinforces this lesson very clearly. The question arises in an important way in the context of locomotive maintenance and utilization but it is very relevant as regards freight cars, passenger coaches and other equipment. A study which could provide the foundation for guidance to Bank staff and to the Railway borrowers is very necessary.

3.35 Other subjects recommended for study are:

- (1) Information systems in Railways; data collecting that at the minimum should be organized for satisfactory maintenance, operation and investment planning.
- (2) Track wear related to maintenance and operating conditions.
- (3) Signalling and telecommunication systems: Least cost solutions for the upgrading that would achieve the particular magnitudes of increase needed in line capacity consistent with safety.

There may be a need felt in the coming years for one or two other technical studies.

E. Research into Rural Roads and their Socio-Economic Impacts

General Observations

3.36 The research on rural transport should not only be continued but expanded in different ways. It addresses itself to the Bank's present lending priorities in the rural sector,^{1/} focussing on the poorer groups; this emphasizes the need for an approach integrating the social and economic factors, in an effort to solve some of the problems of rural development. Rural roads - and the means used for moving people, commodities and information generally - are a necessary and important component of many rural development projects; they may account for more than 50% of the cost. In this field many disappointing results stem from the inadequacy of traditional economic tools when confronted with complex socio-economic and institution problems, e.g., distribution effects, regional planning, social dynamics. New tools should be designed to deal in a systematic way with these issues. A significant amount of resources (mainly Bank staff time) should be invested in order to explore these new avenues that may earn a good return for the Bank as well as for the countries concerned. It would be useful to continue along the innovative lines and methods of socio-economic analysis developed in the Bank since the beginning of the seventies.

3.37 The Bank's operational need for deeper and better empirical information about the social as well as economic impact of rural roads and other rural infrastructure seems to be urgent. First, there are the ex-post evaluations of many past rural road projects and components which indicate disappointing impact compared to that expected; the response to that finding has been, quite rightly, to link rural road construction much more directly with simultaneous actions in other fields such as agricultural extension and marketing, but it is not yet clear whether this is a fully adequate solution. Second, while the Bank has taken very strong initiatives to promote projects which would help to solve the socio-economic problem of poverty, severe difficulties quite often arise in discussions with Governments in reconciling their criteria for selection of roads for construction

^{1/} Over US\$3.0 billion last year.

with the Bank's largely economically based selection criteria; the Bank should be in a better position to advise on what social effects roads (and other infrastructure) can really have. Third, we were very struck by the emphasis that several of the Regional Projects Directors placed on the difficulty of correctly forecasting even the types of impact presently stressed by the Bank - such as on production and on transport costs - because of lack of empirical knowledge about factors like farmer response, consumption elasticities and efficiency of transport service enterprises, which are heavily affected by behavioral and social considerations. The urgent need is thus for pooling of practical knowledge and experience from a wide range of circumstances, and for methodology only to the extent necessary to sort and classify this empirical information in an operationally applicable manner.

3.38 As transport needs of rural populations can only be analyzed in terms of a combination of socio-economic factors, a fair amount of research and experience in this respect has been accumulated by the Transportation Department; this is reflected in a large number of reports and papers (see Appendix III). It follows the trend experienced on a world-wide basis in the field of transport economic research - the recognition of the true nature of transport as a service intimately dependent upon the needs of the many different economic and social activities in a given area, has led the researchers to link it with regional planning and spatial organization. This integrative approach has led transport research into becoming a multidisciplinary field, gathering specialists of various backgrounds - engineering, economy, sociology, political science, geography, management. This is in line with the shift of emphasis, experienced in the Bank as well as outside, from the problems of infrastructure towards those of management and organization of transport activities.

3.39 These considerations explain why we strongly recommend that an important part of the research resources of the Transportation Department be allocated to further and expanded work into evaluation of socio-economic impacts of transport in rural areas. It seems highly desirable that a very significant part of the proposed research program be approached multisectorally. For these reasons, we

propose that this line of research be pursued in three different ways:

- a) continuing and completing the present socio-economic impact studies undertaken in the Transportation Department
- b) launching in this Department a limited set of new research topics in rural transportation
- c) cooperating with the Agriculture and Rural Development Department in a broad based research program geared at the in-depth observation and analysis of the socio-economic impacts of rural infrastructure (building and operations); we recommend that this program be implemented by a multidisciplinary task force.

Cooperative research on the socio-economics impacts of rural infrastructure

3.40 Numerous testimonies have been collected on the desirability of such a program, through meetings with Bank's staff and executives, (CPS and Regions) in various sectors. A member of the panel has been given the specific mission of exploring the subject with representatives of the Agriculture and Rural Development Department. Following these meetings a broad consensus was reached on the interest of the subject, its researchability and the principle of proposing to the Bank management the organization of a cooperative task-force. The main aims of the suggested long-term program proposed would be:

- to explore the subject in depth in order to learn the lessons of previous experience in a systematic way;
- to identify all the relevant factors (social, economic and political);
- to organize them so that they can be given relative weights;
- to detect the main interrelations between groups of factors;
- to better relate strategic decisions and objectives concerning Rural Development (in a given area) and implementation of infrastructure.

A "Tentative Guidelines for a Research Project on Socio-Economic Impacts of Rural Infrastructure" has been prepared by a member of the panel.

3.41 For the organization of the program, the panel does not want to propose a particular solution, but it stresses the necessity for the Bank of planning

extensive work in this area, deciding the right organizational framework. committing the necessary financial and staff resources and starting work as soon as possible.

On-going and New Research

3.42 In the light of what has been said above, it seems essential that the Transportation Department receive the necessary resources for continuing the on-going research on rural roads. This would contribute to the broader program outlined above. It should include dissemination and improvement of operational tools like the RRPACK as an appraisal methodology and the Rural Roads Handbook; follow-up on the Socio-economic Impact Study in Brazil (nationally supported project initiated in connection with a Bank loan); methodological approaches like those on the institutional aspects of rural roads and on the practical problems faced by transport service enterprises in the rural areas, including an assessment of the quality of service provided by the transport industry.

3.43 It seems wise to provide resources for implementing Phase II (the "after" study) in the two cases of rural roads in Ethiopia and the Yemen Arab Republic: otherwise, much of the potential benefits of the very innovative Phase I would be lost. In line with the on-going research on transport services, it seems logical to do more work with a view to understanding the transport needs of rural populations and the socio-cultural determinants of their desire for mobility at different levels of accessibility and development. At present, lack of empirical data in this area forms one of the major constraints on the development of simple, analytical tools in evaluation of rural roads.

F. Multimodal and Other

3.44 Methods and Processes of Deregulation: as a follow-up to earlier research work on road and port pricing and trucking industry regulation, and in the line of bringing the results to greater operational applicability, analysis of the problems and advantages actually experienced in deregulating transport industries and introducing more competitive pricing. The current experience of the United States in deregulating airlines, trucking and, to some extent, shipping would be analyzed for its implications for developing countries, both direct and as a parallel, and experience in some other particular cases - e.g. railway freight and inter-urban bus services in Brazil, trucking in Kenya and Korea, railways in England, inter-state trucking in India - would be reviewed for its lessons, with special focus on the institutional and operational side.

3.45 Social Transfers through Transport Pricing: the pricing and subsidies policies, on which the Bank is often called upon to advise, could be approached through models of transfer of benefits and costs (including nuisances etc.) between different social groups; transport being as it seems, and in contrast to traditional Bank policy advice, one of the favourite tools of the Governments to operate voluntarily or unwillingly such transfers.

3.46 Country Motorization Policies: Analysis of the widely differing experiences among countries regarding the development of the private automobile as a means of transport, and assessment of the advantages and disadvantages of alternative restrictive policies on growth of private cars, so as to better assess countries' overall transport development strategies and advise on taxation, promotion of public transport alternatives, subsidization, etc.

3.47 Land-Use and Spatial Development Aspects of Transport Infrastructure:

the formative, if not dominating, impact of transport infrastructure investment on the spatial patterns of a country's development and geographical population distribution has been increasingly recognized in recent years and raises a question whether traditional methods of transport investment appraisal emphasizing internal efficiency of the particular transport mode may not sometimes produce misleading results by neglecting the external economies and diseconomies that result. This is a matter of application of the regional development approach, which the Bank has fostered for limited rural areas, to the macro-scale and could be particularly important for countries which face large fundamental decisions on the pattern of their spatial development over the next 20-30 years.

3.48 Inter-national Road Transport: development of a more comprehensive approach

to the many aspects involved in development of road transport services between countries, including administrative aspects (such as insurance, licensing customs), engineering (highway design standards, road signs and driving rules) and broader economic and commercial questions. This is an area where the Bank has sometimes participated in financing particular infrastructure investments (with mixed pattern of results) but has not taken a broader approach. It is receiving particular attention in Africa now in the form of the African Transport and Communications decade 1978-88. The Transportation Department has identified a particular potential for preparing a comprehensive inventory of future possible integrated projects involving both mining or industry and international transport development, as a means to help promote project preparation and planning in a way to expedite achievement of better inter-African links. Pursuit of this good idea will take more resources for collection and analysis of information.

3.49 Freight Transport Chain: a model for analyzing transport by commodity from its point of origin as a raw material through all intermediate marketing, warehousing and processing stages to final distribution as a finished good, with a view to minimizing costs and identifying bottlenecks and any points of excessively high prices. This study would be very useful in a broader approach to transport, and in support of general Bank policy concerns such as promotion of developing country export earnings and in connection with the containerization issues.

3.50 Domestic Regional Aviation: In addition to the very useful work in developing new broader methods of socio-economic analysis of rural road projects which was started in the 1970s special subsidiary effort, adopting the same broad framework, may be needed for analysis of domestic regional aviation as an alternative to roads, since the overall review of Aviation's Role in Development, which the Transportation Department has been doing, and experience in many countries suggest that this may be an area of potential in particularly remote parts of much of the developing world. Where the provision of some form of transport access would be generally accepted as essential from an administrative and social point of view, even though it cannot for the moment be in any way financially viable, air transport may have lower total costs (capital in form of both infrastructure and vehicles, plus maintenance and operational costs) than road transport; moreover air transport may have certain advantages in concentrating development impact in an area, instead of draining it away as when locally produced materials and crops are taken out by road for processing elsewhere.

3.51 Aircraft Selection Criteria: as a further step in strengthening the attention given to aircraft and air services in Bank work on airport projects, and to respond to felt needs of borrowing countries, development of models for analyzing alternative route structures and configurations for domestic air services to help decide what size and type of aircraft should be purchased. Such models have been developed by aircraft manufacturers, but they need review and consolidation by a more neutral source, with particular emphasis on the parameters important to developing countries.

3.52 Energy Aspects of Alternative Transport Modes and of Different Technologies within Modes: rail vs. road vs. air, diesel vs. electric, gasoline vs. alcohol vs. air cushion; airplane vs. airship etc. Such work should be done in close coordination with the Energy Unit in the Energy, Water Telecommunications Department.

3.53 Risk Analysis Case Studies: work on this subject would build on earlier Bank efforts in this field with a view to developing an operational methodology to better handle engineering, economic and social risks in transport project evaluation.

3.54 Compendia of Cross-country Comparative Statistics: indicative of such compilations would be information on:

- share of transport investment in total budget
- per kilometer cost of construction and maintenance by type of road
- kilometers of road/capita by country and sub-regions
- vehicles/capita by country and sub-regions
- vehicle fleet composition
- vehicle operating costs by vehicle type
- productivities (e.g. of port gangs, road construction gangs)
- utilization rates (e.g. of construction equipment/railroad equipment)
- modal splits for passengers and freight and their evolution over time
- availability and utilization rates for different items of road maintenance equipment

We are somewhat surprised to find how very little of such work the Bank has so far been able to do, despite the unique wealth of information to which it has access.

B. Future Programs and Priorities

4.10 The fundamental guiding principle of Bank transportation research is that it be addressed to help solve significant transportation problems of developing countries. This principle has served well to give purpose and focus to the work undertaken in the past and continuing today. In planning future research every effort must be made to anticipate key problems of the future.

Among the key issues for the 1980's one can foresee today are:

1. Maintenance of the large highway networks that have been built up;
2. Railway financial situation and the fiscal burden of deficits;
3. Energy problems: cost trends, security of supply, pollution, etc;
4. Relationship between major transport policies and infrastructural development, on the one hand and spatial allocation of population and economic activity on the other;
5. Support for international trade expansion: ports and shipping;
6. Designing rural projects for optimal social and economic impact;
7. Organizational, administrative and operating efficiency of transport agencies;
8. Development of efficient domestic construction capacity.

4.11 Within these general perspectives the Panel has given serious attention to the priorities and prospective resource claims of specific research topics over the next five years. The results of these deliberations are summarized in Table 2 in terms of man months of Bank staff and external manpower. It is, of course, difficult to predict five years into the future with precision, and it is essential that the Bank should maintain flexibility

and be prepared to revise priorities in light of possible future developments. Nonetheless the long history of transportation research and its close relation to Bank operations makes it possible to plan ahead with a rather larger element of confidence than may be the case in other sectors.

4.12 Over the next five years the program composition and resource allocations should in fact be altering markedly as the large research projects on highway standards and civil construction technology, which have absorbed the major effort in recent years, are completed and a much broader new program of small and medium scale studies in railways, ports, shipping and aviation, some of which has already been initiated, is expanded. More attention will also be given to preparation of expert state-of-the-art surveys in many areas to ensure that results of the much larger volume of research being done outside the Bank is made available to Bank staff and borrowers alike.

4.13 The first claim on resources is for the dissemination and implementation of the results of the very large studies on highway design and maintenance standards and civil construction technology, now largely completed. Without substantial efforts to assist Bank staff and borrowers alike it is clear that the fundamental findings and new tools of analysis developed by these major studies would be implemented only very slowly, if at all, and the rapidly growing number of requests for assistance in this respect should not be ignored. Of similar importance is the recently initiated study on the economic role of railways, a traditionally important but much troubled sector of Bank lending; research is urgently needed to help formulate future Bank railway lending policies.

4.14 Largely because of the very high priority we attach to the numerous relatively small research jobs listed plus dissemination work, and hence

to provision of the necessary staff for this, we would recommend a very selective approach to new, more innovative and ambitious undertakings of the scale of the earlier Highway Design and Labor-Capital substitution studies. Phase II of the study of the Economic Role of Railways may well be a fairly large undertaking in its own right. Hence new initiatives should probably be limited only to areas of very high potential pay-off and broad relevance. There are several topics which would seem likely to fall in that category - such as Processes of Deregulation and Spatial Development Aspects of Transport Infrastructure Development - and others which may well do so after preliminary work has been done on them.

4.15 Clearly, however, there is a very high priority claim for new large-scale, long-term research in studying the socio-economic impacts of feeder roads and other rural development measures. The pioneering work done in the feeder road impact studies in Ethiopia, Yemen Arab Republic and particularly Madagascar have clearly demonstrated that the subject, although complex, rewards research provided that proper care is taken to assemble a sound primary data base for before as well as after conditions along with concomitant controls. Eloquent testimony was heard from the Projects Department Directors that they considered the existing basis for predicting the impact of rural development projects to be inadequate and in need of strengthening for planning of new projects. We note too that our companion panel for that sector, RAPARD, has also emphasized the importance of a better evaluation of the Bank's experience in this relatively new but largest of all Bank lending sectors. It is clear that more rigorous, deeper evaluation of the Bank's experience in rural development is warranted. Drawing lessons from experience of the Bank's monitoring and evaluation efforts and various

studies such as the African Rural Development Survey as well as the Transportation Department's feeder road studies, we can only conclude that a large, sustained effort over at least 8-10 years will be required including at least some direct support by the Bank to the primary data collection effort which would largely be executed by local institutions. In Table 2 we have made allowance for 1 to 2 man years of transport/regional development specialist assistance as a contribution to a much broader effort which would possibly most logically fall under the leadership of the Agriculture and Rural Development Department within the Bank, but would also include major efforts by local institutions. We see no shortcuts or easier avenues if we are to gain truly better insights into the process of rural change and the impact of Bank rural development investments on human welfare.

4.16 The recommended program of transport research implies an increase over three years of three Bank staff (from the current approximate seven man years per year) plus one or two additional transport staff in support of the proposed broader study on socio-economic impacts of rural development projects. The Panel notes that this increase does not permit undertaking all of the recommended topics discussed in Chapter III within the 5-year horizon considered. If even this modest increase should be reduced, then it would be necessary to delay corresponding portions of the new research projects (shown on page 2 of Table 2), as paramount priority must be attached to completion of the major ongoing projects and dissemination of their findings. Our extensive discussions with Bank operational staff in many departments underscore the pointlessness of undertaking research without followup effort to ensure utilization of research findings.

Table 2: PROPOSED TRANSPORTATION RESEARCH PROGRAM, FY 79-83
(Man Months: Staff-External-Total)

	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>Total FY 79-83</u>
<u>CONTINUATION ON-GOING RESEARCH</u>						
I. Highway Design & Maintenance Standards						
1.1 HDM Model Modifications	1- 8- 9	4- 2- 6	4- 2- 6	1- 0- 1	1- 0- 1	11- 12- 23
1.2 HDM User's Manual	1- 2- 3	1- 0- 1	1- 0- 1	1- 0- 1		4- 2- 6
1.3 HDM Applications	3- 0- 3	4- 0- 4	5- 0- 5	3- 0- 3	2- 0- 2	17- 0- 17
1.4 HDM Seminars & Training	1- 0- 1	2- 0- 2	1- 0- 1	1- 0- 1	1- 0- 1	6- 0- 6
1.5 Brazil HDS Supervision	2- 0- 2	4- 1- 5	1- 1- 2	1- 0- 1	1- 0- 1	9- 2- 11
1.6 India HDS Supervision	3- 1- 4	3- 0- 3	3- 1- 4	2- 1- 3	2- 1- 3	13- 4- 17
1.7 Simplified VOC models/applications	1- 0- 1	1- 0- 1	1- 0- 1	1- 0- 1		4- 0- 4
1.8 Revised "Quantific'n Rd. User Savings"		1- 4- 5	1- 4- 5	1- 4- 5		3- 12- 15
1.9 Book: Highway Design/Mtce. Economics				4- 1- 5	7- 1- 8	8- 2- 10
1.10 Highway Mtce: Problems & Policies	<u>6- 3- 9</u>					<u>6- 3- 9</u>
	18-14-32	20- 7-27	17- 8-25	15- 6-21	14- 2-16	84- 37-121
II. Substitution of Labor in Construction						
2.1 Handbook	4-12-16	2- 1- 3				6- 13- 19
2.2 Projects: Identification & Preappraisal	2- 3- 5	4- 2- 6	4- 2- 6	4- 1- 5	3- 1- 4	17- 9- 26
2.3 Projects: Design & Implementation	2-10-12	3-12-15	4-12-16	3-11-14	2- 6- 8	14- 51- 65
2.4 Evaluation of Demonstration Projects			2- 2- 4	4- 4- 8	3- 6- 9	9- 12- 21
	<u>8-25-33</u>	<u>9-15-24</u>	<u>10-16-26</u>	<u>11-16-27</u>	<u>8-13-21</u>	<u>46- 85-131</u>
III. Ports and Shipping						
3.1 Port Pricing: Case Studies	2- 3- 5	3- 6- 9	2- 3- 5			7- 12- 19
3.2 Port Pricing: Operational Report			1- 0- 1	4- 0- 4	2- 0- 2	7- 0- 7
	<u>2- 3- 5</u>	<u>3- 6- 9</u>	<u>3- 3- 6</u>	<u>4- 0- 4</u>	<u>2- 0- 2</u>	<u>14- 12- 26</u>
IV. Railways						
4.1 Economic Role of Railways I	7- 0- 7					7- 0- 7
4.2 Economic Role of Railways II		5-15-20	6-15-21	8- 4-12	2- 0- 2	21- 34- 55
4.3 Railway Model Development	2-10-12	2- 4- 6	2- 1- 3			6- 15- 21
4.4 Railway Model Applications			2- 0- 2	2- 0- 2	2- 0- 2	6- 0- 6
4.5 Railway Training Issues		<u>1- 5- 6</u>				<u>1- 5- 6</u>
	<u>9-10-19</u>	<u>8-24-32</u>	<u>10-16-26</u>	<u>10- 4-14</u>	<u>4- 0- 4</u>	<u>41- 54- 95</u>
V. Rural Roads						
5.1 Appraisal Methodology Ext'n's & Applic'n's	1- 0- 1	2- 0- 2	2- 0- 2	2- 0- 2	3- 0- 3	10- 0- 10
5.2 Brazil Feeder Road Studies		1- 0- 1	2- 0- 2	2- 0- 2	2- 0- 2	7- 0- 7
5.3 Institutional Aspects Feeder Roads	10- 0-10	4- 0- 4				14- 0- 14
5.4 Rural Transport Services	3- 0- 3	4- 4- 8				7- 4- 11
5.5 Rural Roads Handbook			6- 0- 6			6- 0- 6
	<u>14- 0- 14</u>	<u>11- 4-15</u>	<u>10- 0-10</u>	<u>4- 0- 4</u>	<u>5- 0- 5</u>	<u>44- 4- 48</u>
VI. Multi-modal						
6.1 African Inter-state Projects	<u>1- 0- 1</u>	<u>1- 1- 2</u>	<u>3- 5- 8</u>			<u>5- 6- 11</u>
TOTAL	52-52-104	52-57-109	53-48-101	44-26-70	33-15-48	234-198-432

Table 2 (contd..) PROPOSED TRANSPORTATION RESEARCH PROGRAM, FY 79-83
(Man Months: Staff-External-Total)

	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>Total FY 79-83</u>
NEW PROJECTS						
I. Highways						
1.11 Highway Safety Problem	2- 2- 4	3- 3- 6				5- 5- 10
1.12 Road User Charges	5- 2- 7	6- 5-11	2- 0- 2			13- 7- 20
1.13 Bus/Trucking Regulation/Organization			3- 2- 5	8- 6-14	2- 0- 2	13- 8- 21
1.14 Misc. Tech. Guidelines			<u>1- 3- 4</u>	<u>1- 3- 4</u>	<u>2- 4- 6</u>	<u>4- 10- 14</u>
	7- 4-11	9- 8-17	6- 5-11	9- 9-18	4- 4- 8	35- 30- 65
II. Construction Industry						
2.5 Study Selected Countries	1- 1- 2	3- 4- 7	4-11-15	4- 0- 4		12- 16- 28
2.6 Review Paper: Constrn. Ind. Dev.		<u>7- 6-13</u>	<u>2- 0- 2</u>			<u>9- 6- 15</u>
	1- 1- 2	10-10-20	6-11-17	4- 0- 4		21- 22- 43
III. Ports and Shipping						
3.3 Ocean Shipping Potential	8- 2-10	6- 5-11				14- 7- 21
3.4 Port Management Problem		1- 0- 1	6- 6-12	3- 0- 3	2- 0- 2	12- 6- 18
3.5 Ports & Regional Development			1- 0- 1	8- 6-14	3- 0- 3	12- 6- 18
3.6 Coastal Shipping Potential				<u>2- 0- 2</u>	<u>8- 8-16</u>	<u>10- 8- 18</u>
	8- 2-10	7- 5-12	7- 6-13	13- 6-19	13- 8-21	48- 27- 75
IV. Railways						
4.6 Comparative Costs Rail/Other Modes		1- 0- 1	4- 6-10			5- 6- 11
4.7 Practice in Service Reductions/Closures			6- 6-12	2- 0- 2	2- 0- 2	10- 6- 16
4.8 Electrification vs. Dieselization				3- 4- 7		3- 4- -
4.9 Equipment Maintenance/Utilization					6- 5-11	6- 5- -
4.10 Railway Information Systems					5- 4- 9	5- 4- -
4.11 Misc. Technical Topics	<u>1- 1- 2</u>	<u>1- 1- 2</u>	<u>1- 2- 3</u>	<u>1- 2- 3</u>	<u>1- 2- 3</u>	<u>5- 8- 13</u>
	1- 1- 2	2- 1- 3	11-14-25	6- 6-12	14-11-25	34- 33- 67
V. Rural Transport						
5.6 YAR Feeder Roads: Phase II				2-26-28	2-10-12	4- 36- 40
5.7 Ethiopia Feeder Roads: Phase II				2-14-16	2-12-14	4- 26- 30
5.8 Rural Transport Needs			2- 6- 8	2- 8-10	2- 5- 7	6- 19- 25
5.9 Domestic Regional Aviation			<u>5- 3- 8</u>	<u>4- 1- 5</u>	<u>2- 0- 2</u>	<u>11- 4- 15</u>
			7- 9-16	10-49-59	8-27-35	25- 85-110
VI. Multi-modal and Other						
6.2 Process of Deregulation			2- 0- 2	8- 6-14	5- 4- 9	15- 10- 25
6.3 Spatial Implications of Transport Projects			1- 0- 1	3- 0- 3	9-10-19	13- 10- 23
6.4 Social Transfers by Transport Pricing				2- 0- 2	2-10-12	4- 10- 14
6.5 Freight Transport Chain					5- 5-10	5- 5- 10
6.6 Risk Analysis Updating					<u>2- 0- 2</u>	<u>2- 0- 2</u>
			3- 0- 3	13- 6-19	23-29-52	39- 35- 74
TOTAL	17- 8-25	28-24-52	40-45-85	55-76-131	62-79-141	202-232-434
COMBINED TOTAL	69-60-129	80-81-161	93-93-186	99-102-201	95-94-189	436-430-866
Contribution to Rural Infrastructure Research Program		4- 0- 4	9- 0- 9	10- 0-10	15- 0-15	38- 0- 38
GRAND TOTAL	69-60-129	84-81-165	102-93-195	109-102-211	110-94-204	474-430

TABLE 1

External Expenditure FY75 to FY78, Compared to Guidelines
(Percentage of external expenditure)

<u>Category</u>	<u>Guidelines</u>	<u>Actual</u> <u>1/</u>
IA. General Planning	1.0	-
IB. Income Distribution	14.0	11.4
IC. Growth/Country Economic Analysis	10.0	13.4
II. International Finance and Trade	4.0	6.4
III. Agriculture and Rural Development	20.0	17.9
IV. Industry	10.0	6.5
V. Transportation	10.0	11.0
VI. Energy, Water and Telecommunications	5.0	8.1
VII. Urbanization	10.0	7.8
VIIIA. Education	5.0	4.6
VIIIB. Labor and Employment	5.0	7.5
VIIIC. Population, Nutrition, and Health	5.0	4.7
Others	1.0	0.7
	<u>100.0</u>	<u>100.0</u>

1/ Actual for FY75 to FY78 (in FY79 \$).

Source: Report on Research, 1978.

Table 1.1: FY77 RESOURCES DEVOTED TO RESEARCH: PROFILE BY DEPARTMENT
(expenditures in \$'000; manpower in man-years)

Department	Research Committee-Approved Projects			Departmental Studies		Other	
	"External" Exp.	Manpower		Manpower		Manpower	
		Prof.	Asst.	Prof.	Asst.	Prof.	Asst.
DPS							
Development Research Center	633.0	11.9	6.4	0.5	-/b	3.4	1.2
Economic Analysis and Projections /a	233.0	0.3	-	0.8	-/b	0.6	0.1
Development Economics	327.1	11.0	8.4	5.0	4.0	8.8	1.0
Office of Vice Pres., Development Policy	19.4	0.1	-	-	-	-	-
<u>Total DPS</u>	<u>1,212.5</u>	<u>23.3</u>	<u>14.8</u>	<u>6.3</u>	<u>4.0</u>	<u>12.8</u>	<u>2.3</u>
CPS							
Agriculture and Rural Development	269.0	3.9	-	1.3	-	0.5	-
Transportation	261.6	3.5	-	0.5	-	0.4	-
Urban Projects	7.3	1.8	-	0.3	0.9	0.7	-
Energy, Water and Telecommunications	232.7	3.1	-	2.0	-	-	-
Education	16.7	-/b	-	-	-	0.6	-
Industrial Projects	-	-	-	1.5	-	0.4	-
Tourism Projects	-	-	-	1.7	-	0.1	-
Office of the Vice Pres., Projects Staff	-	0.2	-	-	-	1.0	-
Other CPS	-	-	-	-	-	0.8	-
<u>Total CPS</u>	<u>787.3</u>	<u>12.5</u>	<u>-</u>	<u>7.3</u>	<u>0.9</u>	<u>4.5</u>	<u>-</u>
<u>Regional Offices</u>	<u>39.4</u>	<u>0.2</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1.8</u>	<u>-</u>
<u>TOTAL</u>	<u>2,039.2</u>	<u>36.0</u>	<u>14.8</u>	<u>13.6</u>	<u>4.9</u>	<u>19.1</u>	<u>2.3</u>

Footnote: Professional manpower includes YP's (3.6) and consultants not financed under "external" expenditure (16.0).

/a Excluding commodity analysis and projections (approximately 6.7 professional/consultant and 2.2 assistant man-years).

/b Less than 0.1 staff year.

Table 1.2: FY77 RESOURCES DEVOTED TO RESEARCH: PROFILE BY FUNCTIONAL CATEGORY
(expenditures in \$'000; manpower in man-years)

<u>Category</u>	<u>Research Committee- Approved Projects</u>			<u>Departmental Studies</u>	
	<u>"External" Exp.</u>	<u>Manpower</u>		<u>Manpower</u>	
		<u>Prof.</u>	<u>Asst.</u>	<u>Prof.</u>	<u>Asst.</u>
Income Distribution	118.7	2.4	1.4	0.6	0.1
Growth/Country Economic Analysis	367.8	3.1	0.9	0.7	-
International Finance and Trade	172.0	2.8	1.1	0.2	0.8
Agriculture and Rural Development	503.9	8.7	1.9	1.3	0.2
Industry	99.3	5.6	7.2	3.3	0.5
Transportation	248.0	3.5	-	0.5	-
Energy, Water and Telecommunications	232.7	3.1	-	2.0	-
Urbanization	65.1	3.3	1.1	0.6	1.1
Education	51.4	0.2	0.3	0.3	-
Labor and Employment	69.9	1.8	0.8	0.9	0.6
Population, Nutrition, and Health	91.0	1.5	0.1	1.7	1.6
Tourism	-	-	-	1.5	-
Other	19.4	-	-	-	-
<u>TOTAL</u>	<u>2,039.2</u>	<u>36.0</u>	<u>14.8</u>	<u>13.6</u>	<u>4.9</u>

Commodities

World Bank

Commodities Research Advisory Panel

Chairman: Dr. Alfonso Celso Pastore (Brazil): Dr. Pastore is the founder and director of the Fundacao Centro de Estudos de Comercio Exterior (FCECE), and also associated with the recently founded Center of Brazilian Studies at the School of Advanced International Studies, Johns Hopkins University. Prior to that he was Director of the Fundacao Instituto de Pesquisas Economicas, University of Sao Paulo in Brazil. He obtained his Ph.D in economics from University of Sao Paulo and has written extensively on Brazilian economic development and international trade policy issues.

Dr. Eric Ojala (New Zealand): Dr. Ojala is Senior Research Fellow, Department of Agricultural Economics and Farm Management, Massey University. He was assistant Director General, FAO, 1970-76 and Director, Commodities and Trade Division, FAO, 1964-70. Dr. Ojala obtained his Ph.D in Economics from Oxford University; his book on Agriculture and Economic Development was published by Oxford University Press in 1952. He is author of numerous articles and monographs.

Dr. Ali Ahmad Attiga (Libya): Dr. Attiga is Secretary-General of OAPEC. He has held several ministerial posts in Libya and was formerly chairman of the Libya Insurance Company. Prior to that he was Director of Research, Central Bank of Libya. Dr. Attiga was educated at University of California and University of Wisconsin where he obtained a Ph.D in Economics in 1959.

Professor Alan Brown (U.K.): Professor Brown studied and taught at Cambridge University; he now holds a chair in applied economics at Oxford University. Prof. Brown participated in the analysis of the British National Food Survey and advised the FAO in the World Food Program. He also worked as a consultant for other international organizations and national governments. He is the author of several books and articles on econometric methods and on commodity problems.

Draft Terms of Reference for the Advisory Panel evaluating
the World Bank's Economic Analysis and Research on Primary
Commodity Issues

The primary purpose of the panel is to evaluate the quality and effectiveness of the economic support given to the World Bank's operations and country economic analysis in primary commodity trends. This evaluation will include:

- (a) An assessment of the overall approach to primary product/price/volume medium term forecasting;
- (b) a review of the appropriateness of the dissemination of the results to member countries.

The panel will also review the research undertaken and sponsored by the Bank in this area as they relate to the Bank's research objectives. These objectives have been defined as follows:

- to support all aspects of Bank operations, including the assessment of development progress in member countries,
- to broaden our understanding of the development process,
- to improve the Bank's capacity to give policy advice to its members,
- to assist in developing indigenous research capacity in member countries.

Given these objectives, the primary task of this panel would be to assess the character, quality and size of the research program in this field and to make recommendations to the management of the Bank regarding priorities for the next five years.

The panel should consider the question of whether the research conducted addresses an important gap in the understanding of the issues and whether the research design and methodologies employed are well formulated. In addition, the panel should consider the relevance. Bank research to its operations and policy formulations as well as to the process of dissemination by the producers and assimilation by the consumers of research.

Finally, the panel may also wish to consider aspects of cost effectiveness and efficiency in the conduct of the research program.

