Folder Title: Research Projects - General 1975 / 1977 Correspondence - Volume 1

Folder ID: 1064731

Date: 1/3/1975 – 3/31/1975

ISAD(G) Reference Code: WB IBRD/IDA DEC-01-02

Series: Correspondence and Files Created for Research Projects in Support of Operations (Operations Policy Files)

Sub-Fonds: Records of the Office of the Vice President, Development Policy (VPD) and the Development Policy Staff

Fonds: Records of the Office of the Chief Economist

Digitized: 8/16/2018

RESEARCH PROJECTS GENERAL 1975-77 I

THIS FILE IS CLOSED AS OF MARCH 31, 1975

FOR FURTHER CORRESPONDENCE PLEASE SEE VOL. IV

RECORDS MANAGEMENT SECTION

Research

Distribution March 31, 1975

Fred Golladay

Research Notes and Ideas - Early Childhood Investments in Human Capital

1. At our last meeting it was agreed that Marcelo Selowsky and I would prepare a brief statement of the issues in early childhood human capital - based on all of our accumulated thoughts. We would like to begin work on a draft statement within the next week or so, and would therefore appreciate receiving your contributions as soon as possible. Please do not waste great amounts of time polishing your prose -- we are simply looking for breadth of content.

2. The ultimate objective of the statement is to provide a compact conceptualization of the issues which can serve as the basis for discussions with experts and for formulating economic research. Our hope is that the model which emerges from this discussion will afford a fairly detailed characterization of the processes that are involved in investing in children.

3. The following questions may serve to stimulate your speculations:

(1) What are the specific forms of investment in children? (e.g. nutrition, socialization, medical care, ...)

(2) What is the relationship between the timing of investments and their productivity?

(3) Are there contemporaneous or intertemporal complementarities in investments in children?

(4) Are there irreversible "injuries" attributable to underinvestment in children?

(5) How are investments in children related to the distribution of parental wealth/income?

4. Please give your notes, references and xeroxed articles to me or to Marcelo and we will then assemble a draft for circulation by mid-April.

Distribution: Messrs. A. Berg
L. Casazza
M.Selowsky
M. Hultin
S. Reutlinger
T. King
P & H R Division Staff Members.

cc: Mr. R.Gulhati
Mrs. Helen Hughes

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

File

OFFICE MEMORANDUM

Res. General

TO: Mr. D.C. Rao, VPD

DATE: March 28, 1975

FROM: Helen Hughes, ECDDR

SUBJECT: Research Proposals

1. I am enclosing the following on behalf of the Development Economics Department for the Research Committee's consideration:

(A) Research Proposals:

(i) Employment & Rural Development and Population & Human Resources:

1 West African Migration (A & B)
2 Comparative analysis of rural-urban labor market interactions.

A third project in this group, concerned with the determination of income and employment in urban markets will be submitted in May.

(ii) Public Finance Division:

3 Commercial Bank Behavior and Selective Credit Policies

(B) Notices of intent to submit research projects:

(i) Employment & Rural Development Division:

Labor Utilization, Incomes and Employment in Rural Labor Markets.
Development of Non-Farm Activities and Employment in Non-Metropolitan Communities.

(ii) Economics of Industry Division and DRC:

Export Incentives in Developing Countries.

(iii) Economics of Industry Division:

Comparative Study of Sources of Industrial Growth and Structural Change.

(C) Notice of intent to submit a proposal for an increase in the FY76 budget for RP0305.

2. In the usual haste to meet the submission deadline, although preliminary discussions have been held with other Departments, the enclosed proposals have not yet been signed by the Departments supporting them. However, these signatures will be available before the relevant research panels meet.

c.c. Mr. J. Duloy with enclosures
Messrs. Krishna, Reutlinger, Busz
ECD Division Chiefs

HH/kg

Messrs. J. Duloy, J. Waelbroeck, Raj Krishna	March 28, 1975

B. B. King, VPD Signed B. B. King

Indonesia Irrigation Project VI - Research Component

The East Asia & Pacific Region has drawn our attention to this project, which goes to the Board next week. The attached extracts briefly describe that part of the project concerned with monitoring, which will cost in all $600,000.

The Region would welcome DPS participation in the design of the survey and the preparation of the terms of reference for the consultant. I would be grateful if you would let me know whether you wish to designate someone and, if so, whom. It might then be a good idea to arrange a short preliminary meeting with Mr. Golan to brief the participants.

Attachments: President's Report P-1580-IND, page 10.
Appraisal Report 595-IND, Annex 4, page. 7.

cc: Messrs. Votaw, AEP
Golan, AEP
Zincir, AEP
van der Tak, PAS
Rao, VPD

BBKing:gm

engineering, materials and structures and construction and supervision of the first 50m of each tertiary canal. Farmers in the project areas would be organized by the village headmen, under PROSIDA's guidance, to complete the canals. Should farmers fail to construct the tertiary and quaternary canals within twelve months after PROSIDA has completed all of the engineering work and the construction of the first 50m of the tertiary, the system would be completed by the Government (Section 3.04 of the Loan Agreement) and costs recovered through the PEDA tax (paragraph 36 below).

27. The Ministry of Agriculture (MOA) would have overall responsibility for administering the agricultural support services, which are essential to maximize the benefits of improved irrigation. The Director General of Agriculture would appoint a full-time Director in Jakarta and a project manager in Cirebon, who would be responsible for coordinating the activities of all Government agencies concerned and for providing the necessary extension services and farmer training. An agriculture development center would be established in Cirebon to collect agricultural data, expand agricultural support services, and train farmers from the project areas and elsewhere in Indonesia. The project also provides for twelve rural extension centers in Cirebon and Rentang areas to train farmers in the project areas and forty pilot areas to demonstrate on-farm irrigation development. Equipment, vehicles and construction of the facilities necessary for this program are included in the project. The Government would submit its detailed plan for the agricultural development program to the Bank for its review and comments within twelve months of the date of the Loan Agreement and implement this program in accordance with the agreed schedule (Section 3.10 of the Loan Agreement). The project provides for the services of an internationally recruited advisor to assist in the preparation of this plan and for training abroad and in Indonesia of MOA staff in the fields of agricultural management, crop data collection, rice production techniques and organization of local farmers.

28. To ensure the adequate supply of other agricultural inputs, the BIMAS package program providing production credit, fertilizers, pesticides, extension and improved seeds would be expanded in the project areas. Under this program, the Bank Rakyat Indonesia provides credit to farmers and MOA provides extension and improved seeds. Fertilizer is made available through Government and commercial retailers. MOA, PROSIDA, Provincial Government irrigation engineers and farmers' groups would work together closely to improve water distribution and management.

29. MOA would be responsible for setting up and maintaining a system for monitoring the socio-economic benefits of all Bank Group-financed irrigation projects. This system would monitor production results and the social distribution of benefits. The project provides for the services of a consultant to assist MOA in the establishment of the monitoring system and for the equipment and material required for such monitoring. MOA would submit to the Bank, within six months of the signing of the Loan, a proposal for monitoring these benefits (Section 3.12 of the Loan Agreement).

Project Benefit Monitoring Specialist

21. In order to provide GOI and the Bank with basic data on the current and future situation regarding crop yields, farm incomes, off-farm incomes, household expenditures, size distribution of farms, numbers of landlords, sharecroppers and landless laborers and other related socio-economic data, monitoring surveys would be included in the project. GOI has agreed that the agro-economic surveys would also cover the five irrigation projects already financed by the Bank Group.

22. The surveys would be conducted by MOA and, since experience of other such surveys indicate that the type of questionnaire, intensity of study, cost and the organization or individuals responsible are vital factors affecting the results of such surveys, an individual specialist would be provided under the project to advise MOA on these questions. Specifically, he would visit Indonesia for about six weeks twice in the first six months of project implementation to:

(a) advise on the intensity of the surveys;

(b) assist in preparation of questionnaires for both individuals and village heads;

(c) advise on data processing methods and if necessary arrange computer processing;

(d) help prepare cost estimates for annual surveys covering a ten year period; and

(e) join discussion between GOI and the Bank regarding survey implementation.

Following implementation of the first survey, the specialist would assist in data processing and analyzing and, thereafter, would pay periodic visits to Indonesia at the annual survey time to monitor progress and check results. A total of 12 man-months would be included in the project for this advisor.

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

F/c

OFFICE MEMORANDUM

TO: Mr. D. C. Rao, VPD

DATE: March 27, 1975

FROM: S. M. Tolbert SAS f.f.

SUBJECT: Research Project on Socio-Cultural Impacts of Tourism

1. This department intends to submit a proposal on the above research project for consideration by the research committee at its May meeting.

2. Attached is a preliminary draft proposal indicating the nature, organization, and budget of the project. A full proposal will be submitted by the end of April, by which time our discussions with Unesco on its possible participation as co-sponsor of the study will have been completed.

3. I would be grateful for any comments you may have, which should be communicated to Mr. Mitchell (ext. 5640) the TMP officer responsible for the study.

FM/w

Attachment

RESEARCH PROJECT ON SOCIO-CULTURAL IMPACTS OF TOURISM

I. General Objectives and Strategy

1. For many years, judgments upon the desirability of expanding tourism in less developed countries have been based upon the economic gains to be secured from this activity. However, possible socio-cultural impacts of tourism have come in for increasing discussion. This has usually but not always been critical of tourism as a development activity.1/ Another reason for interest in the topic is that severe adverse social impacts might eventually diminish the attractiveness of particular destinations, thus jeopardizing the financial and economic viability of projects. For these reasons, social concerns have also been expressed in recent Board discussions of tourism projects. Despite widespread interest in these issues, there is no consensus upon the definition of the socio-cultural impacts of tourism, the mechanisms by which they take place, nor upon the practical means by which they may be modified by policy or project design. For example, there is no classification of types of tourists and of destinations whose combinations may stimulate positive or negative social impacts. Nor is it clear whether the level of social impacts is more sensitive to tourist densities or to tourist growth rates. The main purpose of the proposed study is to formulate sound methodologies which would enable policymakers to take full account of the socio-cultural impacts of tourism. In addition, the study should indicate priorities for further policy-relevant research.

2. The proposed research may be pertinent to fields other than tourism, since the social impacts attributed to tourism arise from two general characteristics common to projects in other sectors. First, the contact between peoples of different cultures is a feature of most projects which involve immigration to particular areas of substantial numbers of workers either at the investment or operation stage. In tourism, this cross-cultural factor is, of course, heightened by contacts between consumers of project outputs (tourists) and local residents. Second, the implantation in remote areas, where traditional technologies and social organizations persist, of 'modern' enterprises with their different structures of authority and employment practices, may create social stresses as well as economic opportunities. Since tourist projects are often located in such areas, these stresses are frequently attributed to tourism.

3. Much past research with relevance to the social impacts of tourism was not focused on this topic per se, due, perhaps, to a lack of recognition of tourism as a phenomenon worthy of academic attention.2/ The methodology of the proposed study -

---

1/ For two popular treatments see Sir George Young, Tourism, Blessing or Blight, (London, Penguin, 1973) and Louis Turner and John Ash, The Golden Hordes (London, Constable, in proof)

2/ There are exceptions of course. Special mention should be made of Unesco's (Social Science Department) sponsorship of a series of studies in Bali being executed by the University of Denpasar, a simulation model for evaluating social impacts of tourism in Argentina (not yet available), and a proposed (for UNDP financing) comparative study on the social/cultural/environmental/economic impacts of tourism on several Mediterranean islands. In addition, the American Anthropological Association held a Symposium on Tourism and Culture Change at its 1974 annual meeting. The edited proceedings are not yet available, but TMP has secured copies of the unedited papers on condition that they are not cited without the written consent of the individual authors.

consisting of a questionnaire to social scientists with experience in LDCs with tourist industries - is designed to overcome this deficiency. The study will elicit relevant unpublished information and also produce more consistent data than now exists on the impacts of tourism on several societies. The findings of the questionnaire and of the reviews of the published literature now under way will be discussed at a seminar composed of social scientists, officials of international development agencies, and representatives of selected tourist-destination countries. It is proposed that the findings be published.

II. Technical Aspects

4. In order to gain some preliminary knowledge on the socio-cultural impacts of tourism, TMP contracted the services of an anthropologist for two weeks to review the English language literature on the subject, and to prepare a list of data to be collected from a variety of tourist destination countries. It was expected that analysis of these data would provide the information necessary to draw up guidelines on social impacts of tourism projects. In discussing the consultant's report1/, however, it became apparent that:

a) there was a need to extend the review of the existing literature including the non-English language literature;

b) the methodology initially assumed was unlikely to lead to meaningful results. Socio-cultural impacts evolve over extended periods of time, and understanding them requires an intimate knowledge of the initial social situation and of changes over the years, neither of which could be acquired in the course of short field visits; and

c) although published material on the socio-cultural aspects of tourism is scarce, there is considerable information potentially available in the field notes of anthropologists who have studied societies where tourism is an important sector.

In the meantime, TMP learned that the Department of Cultural Heritage of Unesco as well had an interest in the social-cultural aspects of tourism. Hence, while TMP has engaged the same consultant for three additional weeks (he commenced on March 24) to complete the English language literature review, Unesco has appointed consultants (Centre d'Etudes du Tourisme, Universite d'Aix-Marseille) to analyze the non-English language literature. Aside from reviewing the literature, the consultants are also preparing drafts of the questionnaire to social scientists for the proposed study.

5. The proposed questionnaire methodology has at least one successful precedent.2/ Provided that the preparation of the questionnaire is thorough, that the respondents have some assurance that their contributions will be properly considered by their professional peers as well as policy-making bodies, and that they have the right to publish their contributions elsewhere, useable responses may be expected from 50% or more of the initial sample of respondents.

1/ Raymond Noronha, Review of the Sociological Literature on Tourism and Terms of Reference for a Study of the Social Impact of Tourism, Draft December 10, 1974 (22pp + 79pp Annexes)

2/ Angela Molnos, Cultural Source Materials for Population Planning in East Africa, Institute of African Studies, University of Nairobi, Nairobi, East African Publishing House, 1972, 3 volumes. Chapter V provides a useful summary of the methodology and an evaluation of its effectiveness (vol. I, pp. 64-99).

III. Organizational Aspects

6. Although the research project has been conceived by TMP, Unesco has been invited to participate. Unesco's decision is expected in April.

7. It is proposed that the administration of the research be contracted to an agency with experience in this type of work. Under the supervision of TMP (and Unesco, should it participate) the contractor would appoint the social scientists who would formulate the questionnaire, correspond with respondents, prepare the papers for discussion at the final seminar and write the final report. This agency would also organize the panel of senior social scientists to review the questionnaire before it is sent, as well as handle all practical arrangements for the seminar. Responsibilities for editorial work on the final publication might be contracted or carried out by the Bank.

8. A decision cannot be made on the contractor until it is known whether Unesco will participate in the study. In the meantime, the TMP has, after considering several possible contractors, requested the Office of International Science of the American Academy for the Advancement of Science to submit a cost estimate of the proposed study. This organization was approached on the basis of three criteria: The AAAS has a good reputation in the academic community;[1] the emphasis of OIS's work is in the social sciences, and especially anthropology; and the AAAS's Washington location would permit easy supervision of the study.

IV. Budget & Timing

9. The costing (including manuscript of the report, but not including publication costs) submitted by AAAS is as follows:

Questionnaires	
40 respondents, honorarium of $ 200 each	$8,000
3 analysts to prepare papers for discussion at the seminar, @ $1,000	3,000
Meeting of 8-man international supervisory committee to finalize questionnaire	2,000
Sub-total questionnaire	13,000
Seminar	6,000
AAAS Staff Costs	
Dr. Reining, staff anthropologist, 3 months @ $2,000 + fringe benefits of 15%	7,000
Dr. I. Tinker, Director, OIS	2,000
Secretarial Services	3,000
Overheads	7,000
Sub-total, AAAS	19,000
Grand Total	38,000

1/ The Office of International Science was established only in late 1973. It still exhibits the extra drive of all new organizations to build a creditable track record, and this was also a factor in the TMP decision to approach it.

(continued on page 4)

It must be emphasized that TMP has not discussed these costings with AAAS pending Unesco's decision.

10. It is estimated that it will take around 6 months elapsed time from the starting point to production of the manuscript of the final report. Another important consideration relates to the Calendar dates at which the questionnaires are sent out and analyzed. To the extent that the social scientists involved will mainly be academics in North America and Europe, it will be possible to achieve a better and quicker response if the bulk of the questionnaire and analytical work is carried out in the months of June to August.[1] This implies that the work should be contracted by June 1975.

1/ (Continued from previous page)

To date, the OIS has undertaken work financed by Rockefeller and AID in connection with the meeting of anthropologists preceding the World Population Conference (Bucharest 1974) and is sponsoring with UNITAR and UNDP the Mexico City Seminar on Women and Development to precede the International Women's Year Conference. It has also been concerned to improve contacts between North American scientists and those from the third world, and is carrying out various activities on compilation of directories of scientists, establishment of multi-language journals, and establishing official contacts between regional associations of scientists. AAAS is recognized as an official non-governmental organization by Unesco.

1/ Some respondents will also be from developing countries, and perhaps also one of the analysts selected to prepare a working paper for the seminar. However, the academic years vary so much in the developing world that it is impossible to pick one time which would be superior to others for all developing countries.

Research

Letter No: 27

March 27, 1975

Mr. J. de Weille
Projects, E. Africa
I.B.R.D.
Washington, D.C.

Dear Jan:

I discussed with Messrs. Jeffrey Coker, Booker and Fall of ECA the draft terms of reference, which we received with Mr. Tolley's letter of January 30, 1975. The delay in discussing this matter is due to absence from Addis Ababa of several of the key staff in ECA concerned with the proposal.

ECA suggests the following changes:

1) Travel: The two junior economists to be appointed should be able to travel since ECA staff foresee the need to visit practically each country to be covered, to gather all available up-to-date information since much of this is not available within ECA. An amount for travel would therefore be included in the budget. No objection is expected from the Dutch authorities. Paragraph 8 (i) should read: ...; no original data generation or processing of raw data is to be undertaken. This will involve a certain amount of international travel"; From para. 15 the sentence: "No travel outside Addis except for home leave/vacation is foreseen", should be deleted.

2) Compilation of Data: ECA wishes to include specific reference to data compilation. Para 8 (ii) should therefore read: "prepare inventories and compilations of transport statistics, following the example of the inventories already prepared for Zaire and Sudan; (Annex 1 and 2); this involves editing of the statistics and grouping them by subject."

3) Guidelines for Improving Transport Data Base: Para 8 (iv) should be revised to read: "draft, towards the end of their assignment, a set of guidelines of use to the African countries in improving their transport data base. These guidelines should be consistent with the recommendations issued by the UN statistical office.

4) ECA Support to the Project: Circumstances in ECA are not expected to permit the provision of a separate office for each of the two junior economists. ECA therefore proposes to replace para 13 (i) by "suitable office accomodation".

5) Supervision: Para 13 (iv) should be made to read: "Supervisory staff - The Chief of ECA's Statistics Division, Mr. Booker, will guide and supervise the implementation of the project on a daily basis; he will be back-stopped by Mr. Fall (Statistics Division, ECA)," (rest unchanged)

6) Assistance in Locating Housing: Para 14 should be deleted since ECA does not provide such assistance. It is easy to find housing in Addis and there is no need for ECA assistance.

7) Attachment 1: Egypt and Libya should be included in the list of countries.

The proposed project must be complementary to ECA regular activities in this field, a description of ECA's program in the field of transport statistics is under preparation and will be provided for us very shortly. It was in connection with the preparation of this program that I requested you in my telex No. 124 of March 14 to indicate the countries in order of coverage you propose.

Yours sincerely,

Eilert J. de Jong

Research ~~Loc Files~~

Mr. David V. M. Haynes, Assistant Director EMENA Projects — March 27, 1975

Rene Costa, Acting Chief, LCPWS

Research Paper on Irrigation Systems

March 16 /75

Please find enclosed a copy of a research proposal made by the Technion-Israel Institute of Technology for the preparation of techniques for decision-making in regard to irrigation systems, which was sent to Mr. Kalbermatten by Mr. David Karmeli, Ph.D., Professor of Agricultural Engineering. I believe that this proposal would be more of interest for the Agricultural Divisions of EMENA than within our Department.

cc: Mr. Geli, Asst. Director, LCP
Mr. J. M. Kalbermatten, Chief, LCPWS

RCosta:saf:nq

Research yellow

Mr. D. C. Rao, VPD

March 27, 1975

S. M. Tolbert p.p.

Research Project on Socio-Cultural Impacts of Tourism

1. This department intends to submit a proposal on the above research project for consideration by the research committee at its May meeting.

2. Attached is a preliminary draft proposal indicating the nature, organization, and budget of the project. A full proposal will be submitted by the end of April, by which time our discussions with Unesco on its possible participation as co-sponsor of the study will have been completed.

3. I would be grateful for any comments you may have, which should be communicated to Mr. Mitchell (ext. 5640) the TMP officer responsible for the study.

FM/w

Attachment

RESEARCH PROJECT ON SOCIO-CULTURAL IMPACTS OF TOURISM

I. General Objectives and Strategy

1. For many years, judgments upon the desirability of expanding tourism in less developed countries have been based upon the economic gains to be secured from this activity. However, possible socio-cultural impacts of tourism have come in for increasing discussion. This has usually but not always been critical of tourism as a development activity.1/ Another reason for interest in the topic is that severe adverse social impacts might eventually diminish the attractiveness of particular destinations, thus jeopardizing the financial and economic viability of projects. For these reasons, social concerns have also been expressed in recent Board discussions of tourism projects. Despite widespread interest in these issues, there is no consensus upon the definition of the socio-cultural impacts of tourism, the mechanisms by which they take place, nor upon the practical means by which they may be modified by policy or project design. For example, there is no classification of types of tourists and of destinations whose combinations may stimulate positive or negative social impacts. Nor is it clear whether the level of social impacts is more sensitive to tourist densities or to tourist growth rates. The main purpose of the proposed study is to formulate sound methodologies which would enable policymakers to take full account of the socio-cultural impacts of tourism. In addition, the study should indicate priorities for further policy-relevant research.

2. The proposed research may be pertinent to fields other than tourism, since the social impacts attributed to tourism arise from two general characteristics common to projects in other sectors. First, the contact between peoples of different cultures is a feature of most projects which involve immigration to particular areas of substantial numbers of workers either at the investment or operation stage. In tourism, this cross-cultural factor is, of course, heightened by contacts between consumers of project outputs (tourists) and local residents. Second, the implantation in remote areas, where traditional technologies and social organizations persist, of 'modern' enterprises with their different structures of authority and employment practices, may create social stresses as well as economic opportunities. Since tourist projects are often located in such areas, these stresses are frequently attributed to tourism.

3. Much past research with relevance to the social impacts of tourism was not focused on this topic per se, due, perhaps, to a lack of recognition of tourism as a phenomenon worthy of academic attention.2/ The methodology of the proposed study -

---

1/ For two popular treatments see Sir George Young, Tourism, Blessing or Blight, (London, Penguin, 1973) and Louis Turner and John Ash, The Golden Hordes (London, Constable, in proof)

2/ There are exceptions of course. Special mention should be made of Unesco's (Social Science Department) sponsorship of a series of studies in Bali being executed by the University of Denpasar, a simulation model for evaluating social impacts of tourism in Argentina (not yet available), and a proposed (for UNDP financing) comparative study on the social/cultural/environmental/economic impacts of tourism on several Mediterranean islands. In addition, the American Anthropological Association held a Symposium on Tourism and Culture Change at its 1974 annual meeting. The edited proceedings are not yet available, but TMP has secured copies of the unedited papers on condition that they are not cited without the written consent of the individual authors.

consisting of a questionnaire to social scientists with experience in LDCs with tourist industries - is designed to overcome this deficiency. The study will elicit relevant unpublished information and also produce more consistent data than now exists on the impacts of tourism on several societies. The findings of the questionnaire and of the reviews of the published literature now under way will be discussed at a seminar composed of social scientists, officials of international development agencies, and representatives of selected tourist-destination countries. It is proposed that the findings be published.

II. Technical Aspects

4. In order to gain some preliminary knowledge on the socio-cultural impacts of tourism, TMP contracted the services of an anthropologist for two weeks to review the English language literature on the subject, and to prepare a list of data to be collected from a variety of tourist destination countries. It was expected that analysis of these data would provide the information necessary to draw up guidelines on social impacts of tourism projects. In discussing the consultant's report[1/], however, it became apparent that:

a) there was a need to extend the review of the existing literature including the non-English language literature;

b) the methodology initially assumed was unlikely to lead to meaningful results. Socio-cultural impacts evolve over extended periods of time, and understanding them requires an intimate knowledge of the initial social situation and of changes over the years, neither of which could be acquired in the course of short field visits; and

c) although published material on the socio-cultural aspects of tourism is scarce, there is considerable information potentially available in the field notes of anthropologists who have studied societies where tourism is an important sector.

In the meantime, TMP learned that the Department of Cultural Heritage of Unesco as well had an interest in the social-cultural aspects of tourism. Hence, while TMP has engaged the same consultant for three additional weeks (he commenced on March 24) to complete the English language literature review, Unesco has appointed consultants (Centre d'Etudes du Tourisme, Universite d'Aix-Marseille) to analyze the non-English language literature. Aside from reviewing the literature, the consultants are also preparing drafts of the questionnaire to social scientists for the proposed study.

5. The proposed questionnaire methodology has at least one successful precedent.[2/] Provided that the preparation of the questionnaire is thorough, that the respondents have some assurance that their contributions will be properly considered by their professional peers as well as policy-making bodies, and that they have the right to publish their contributions elsewhere, useable responses may be expected from 50% or more of the initial sample of respondents.

1/ Raymond Noronha, Review of the Sociological Literature on Tourism and Terms of Reference for a Study of the Social Impact of Tourism, Draft December 10, 1974 (22pp + 79pp Annexes)

2/ Angela Molnos, Cultural Source Materials for Population Planning in East Africa, Institute of African Studies, University of Nairobi, Nairobi, East African Publishing House, 1972, 3 volumes. Chapter V provides a useful summary of the methodology and an evaluation of its effectiveness (vol. I, pp. 64-99).

III. Organizational Aspects

6. Although the research project has been conceived by TMP, Unesco has been invited to participate. Unesco's decision is expected in April.

7. It is proposed that the administration of the research be contracted to an agency with experience in this type of work. Under the supervision of TMP (and Unesco, should it participate) the contractor would appoint the social scientists who would formulate the questionnaire, correspond with respondents, prepare the papers for discussion at the final seminar and write the final report. This agency would also organize the panel of senior social scientists to review the questionnaire before it is sent, as well as handle all practical arrangements for the seminar. Responsibilities for editorial work on the final publication might be contracted or carried out by the Bank.

8. A decision cannot be made on the contractor until it is known whether Unesco will participate in the study. In the meantime, the TMP has, after considering several possible contractors, requested the Office of International Science of the American Academy for the Advancement of Science to submit a cost estimate of the proposed study. This organization was approached on the basis of three criteria: The AAAS has a good reputation in the academic community;1/ the emphasis of OIS's work is in the social sciences, and especially anthropology; and the AAAS's Washington location would permit easy supervision of the study.

IV. Budget & Timing

9. The costing (including manuscript of the report, but not including publication costs) submitted by AAAS is as follows:

Questionnaires	
40 respondents, honorarium of $ 200 each	$8,000
3 analysts to prepare papers for discussion at the seminar, @ $1,000	3,000
Meeting of 8-man international supervisory committee to finalize questionnaire	2,000
Sub-total questionnaire	13,000
Seminar	6,000
AAAS Staff Costs	
Dr. Reining, staff anthropologist, 3 months @ $2,000 + fringe benefits of 15%	7,000
Dr. I. Tinker, Director, OIS	2,000
Secretarial Services	3,000
Overheads	7,000
Sub-total, AAAS	19,000
Grand Total	38,000

1/ The Office of International Science was established only in late 1973. It still exhibits the extra drive of all new organizations to build a creditable track record, and this was also a factor in the TMP decision to approach it.

(continued on page 4)

It must be emphasized that TMP has not discussed these costings with AAAS pending Unesco's decision.

10. It is estimated that it will take around 6 months elapsed time from the starting point to production of the manuscript of the final report. Another important consideration relates to the Calendar dates at which the questionnaires are sent out and analyzed. To the extent that the social scientists involved will mainly be academics in North America and Europe, it will be possible to achieve a better and quicker response if the bulk of the questionnaire and analytical work is carried out in the months of June to August.1/ This implies that the work should be contracted by June 1975.

1/ (Continued from previous page)

To date, the OIS has undertaken work financed by Rockefeller and AID in connection with the meeting of anthropologists preceding the World Population Conference (Bucharest 1974) and is sponsoring with UNITAR and UNDP the Mexico City Seminar on Women and Development to precede the International Women's Year Conference. It has also been concerned to improve contacts between North American scientists and those from the third world, and is carrying out various activities on compilation of directories of scientists, establishment of multi-language journals, and establishing official contacts between regional associations of scientists. AAAS is recognized as an official non-governmental organization by Unesco.

1/ Some respondents will also be from developing countries, and perhaps also one of the analysts selected to prepare a working paper for the seminar. However, the academic years vary so much in the developing world that it is impossible to pick one time which would be superior to others for all developing countries.

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

De Rao
BBK
DZK

OFFICE MEMORANDUM

TO: Mr. J. Duloy

DATE: March 26, 1975

FROM: Graham Pyatt GP

SUBJECT: Research Committee Funds for Next Fiscal Year: Malaysia and Prototypes

File
Res Prop
76

1. Since Montek has not included funds for work on Malaysia by Erik and I in his Research Committee submission, I have set out in the paragraphs below a very brief outline proposal for the Research Committee of a project I would like to run over the next fiscal year. I would not want to pursue this if other possibilities emerged.

2. The proposal is in two parts:

(i) to develop a third case study following my work in Sri Lanka and Swaziland directed to the development of a macro-economic data framework for planning with respect to growth and redistribution. The further development of the Sri Lanka case study is being undertaken by my former collaborators and meanwhile a book is being written. Government clearance for publishing the Swaziland report is pending the report of the recent Bank mission to Swaziland with which the Government wishes to make a comparison. Meanwhile, the work is being applied by my former collaborators, who are in Swaziland now, to the appraisal of some major projects in which the Bank is potentially involved.

(ii) The application of a macro-economic model to the data in the light of developments on the Prototype project and/or the model framework emerging from the work I am doing in collaboration on macroeconomic planning based on experience on the World Employment Program comprehensive missions.

3. I would like to involve all three of my major collaborators in this project as consultants, with a view to producing a very large volume bringing together work on three countries on what can be achieved with respect to existing data, and applications of the approach to (i) fiscal policy, (ii) project appraisal, and (iii) macro-economic planning.

4. The total cost would depend on identification of the country for the third part of this work - Malaysia is only one possibility. The work on Sri Lanka and Swaziland is already financed. The rest would depend on the availability of current Bank staff to work with the consultants. Accordingly, an estimate of $80,000 may be much too high. Meanwhile, it might be possible to explore joint financing of some of the work, e.g. with US AID who, I understand, are interested in the development of data systems oriented towards income distribution. Other possibilities could be explored with the ILO or with the FAO in relation to the attached letter opening up the possibility of an agricultural sector model.

Attachment

cc: Messrs. Balassa, Ahluwalia, Norton, Stoutjesdijk, D.C. Rao.

DEPARTMENT OF ECONOMICS

COLLEGE OF ARTS AND SCIENCES
Cornell University
Uris Hall
Ithaca, New York 14853

Telephone: 607-256-4254

March 21, 1975

Professor Graham Pyatt
Development Research Center
Reconstruction and Development
1818 H Street, N.W.
Washington, D. C. 20433

Dear Graham:

I enclose a copy of the proposed cooperation project between the Planning Unit in Malaysia and FAO which Lu Ng prepared. You will see that it is quite similar to what might be done within the prototype model project. You might want to pass it on to Jack, Roger and Montek for their information.

It was good talking to you over the phone yesterday. Let me take this opportunity to thank you and Allyson for your wonderful hospitality.

Cordial regards,

Erik

Erik Thorbecke
Professor of Economics

P.S. Ng writes that Dr. Robless, the No. 2 man in the Planning Ministry, is strongly behind this project and would like to involve me!

Co-operation Between the Government of Malaysia (EPU) and FAO (Development Research and Training Service, Policy Analysis Division)

in the

Application of Formal Techniques in the Analysis of Agricultrual Development Issues.

A Research Proposal for the Analysis of Income Distribution, Economic Growth and Employment Issues in the Agricul ural Sector of West Mala a

10 MAR 1975

INTRODUCTION

I. Economic planning in Malaysia centres around the New Economic Policy proclaimed by the Malaysian government in 1971. Very briefly, NEP calls for greater equalization of income among different racial groups in Malaysia within a full employment and growth for all context. Operationally, NEP can be phased in terms of eradication of poverty groups (defined by EPU as households with income per member below $25 per month in 1970) and elimination of the identification of race with economic function.

2. Current research, development planning and policy analysis efforts directed at the objectives of NEP are detailed in the paper "Policy analysis and development planning in Malaysia" by Dr. C.L. Robless (1.11.1975) of the EPU. Future directions of research are outlined in paragraphs 44 and 45 of the above paper. Basically, "the approach will be to undertake explicit analysis and limited modelling of strategic sectors and to link these analyses within the overall plan frame." The overall plan frame described in paragraph 45 is essentially a multisectoral (by commodities) employment and income distribution consistency model.

3. Agriculture can be singled out as a strategic, if not the most strategic, sector in future development efforts because of the following three considerations: i) agriculture contains approximately 75% of the identified poor households in Peninsular Malaysia; ii) agriculture's potential for GDP generation because of export crop possibilities and availability of land; and iii) Malaysian government's overriding objective of achieving self-sufficiency in rice. The need for Agriculture

Sector Anrlysis (ASA) is therefore obvious. The current Country Perspective Study (CPS) of the Malaysian agriculture sector by the FAO is a step in the right direction and will provide a useful starting point. Some interesting policy issues have already come to light through the CPS, and more detail and careful study of these policy issues are called for. For example, the CPS indicates a tight agriculture labour market by 1990 given the projected land development policy. Therefore rural-urban and rural-rural (land settlement) migration policies will have important ramifications on poverty groups within the agriculture subsectors and the Cost of a self-sufficiency in rice programme.

4. A second, and perhaps more important, objective of the proposed EPU/FAO cooperation in ASA is the need to develop an ongoing ASA programme within the EPU which will adapt to changing conditions and future policy requirements. The EPU/FAO cooperative effort will therefore involve a heavy on-the-job training component, which is reflected in the programme of work proposed below.

The setting of ASA within EPU's programme of research

5. The accounting framework of the plan frame being developed by the EPU[1] is a multisectoral one. Within the accounting framework, the EPU/FAO cooperative effort in ASA will concern itself with the endogenous determination of:

i) quantity and value of various intermediate inputs used in the various agriculture sectors classified according to commodities;

---

[1] i.e., that which is described in paragraph 45 in Dr. C.L. Robless' paper mentioned earlier.

ii) quantity and value of output in various agricultural commodity sectors;

iii) GDP formation in various agricultural commodity sectors and its allocation to various socio-economic and ethnic groups in agriculture, non-agriculture households, governments, depreciation, and the foreign sector;

iv) population, number of households and employment in various socio-economic groups in the agriculture sector;

v) allocation of non-agricultural GDP to various socio-economic groups in the agricultural sector;

vi) capital formation in various commodity sectors and socio-economic groups in the agricultural sectors.

6. So as to define the limits of EPU/FAO cooperative effort in ASA, the proposed project will assume the following as exogenously determined:

i) demand schedule of (both final and intermediate demand) agricultural commodities;

ii) supply schedule of intermediate agricultural inputs and investments;

iii) demand schedule of agriculture labour from non-agricultural sectors.

The ASA model

7. Because of the need to derive income levels and income distribution within the agricultural sector, it is proposed that classification of agricultural households be designed so as to minimize variance of income distribution within each class of agricultural household. The actual classification scheme will have to be determined when farm survey data are examined. At this early stage, one can guess that farm size and family size will be important determinants of household income. As an example, agriculture households can be subdivided into the following principle classes, with each principle class further divided by farmssize and household size:

I) Estate workers

II) Households on land development schemes

   a) Rubber

   b) Oil palm

   c) Coconuts

   d) Others

III) Small holders

   a) Rubber

   b) Padi

   c) Coconuts

   d) Pineapples

   e) Livestock

   f) Other mixed farmers.

IV) Landless agricultural workers.

V) Fishermen

VI) Forestry workers.

As an initial step, one might just subdivide the above groups into those above and those below the established poverty line.

8. The basic unit of behavorial analysis in the EPU/FAO ASA effort is then a typical household in each class. This approach to ASA can be described as "modelling from the bottom up". A micro-economic or rational decision model will be developed for a typical household in each class, attempting to simulate rational decision making and income at the household level. Each farm household model will treat farm size, household size and composition, tenancy, availability of credit, irrigation, prices of inputs and outputs, soil type and other variables important to income determination as exogenously given. Behaviour of the household, in terms of hours worked on and off farm, use of fertilizers, composition of outputs, investments, income etc will be explained given the exogenous variables.

9. At an informal level, micro-economic models of farm household can simply be farm management type budget studies. At the formal level, some form of programming models can be utilized. The choice of methodology is secondary to the attempt in explaining farm household behaviour in an objective and rational manner. The emphasis on rational choice is importa[nt] as it provides a basis for projecting farm behaviour in the face of rapidly changing conditions exogenous to the farmer. For example, rational decision models can provide the basis for estimating short run supply elasticities of output in the absence of data for more conventional type econometric estimation.

10. Further, modelling of farm households at the micro-economic level will facilitate better understanding of decision making process and mechanisms of the farmer. Binding constraints can be identified, hence more effectively incorporating

supply constraints into ASA. This will also no doubt result in more imaginative agricultural policies. The task of projects identification is also made easier by the availability of micro-economic models.

11. With micro-economic models, aggregate behaviour of all agricultural households can be determined by the simple process of adding up, or aggregation. Aggregation is of course conditioned on distribution of households over various classes. Admittedly, the distribution of households over various classes is difficult to generate endogenously within ASA. However, consideration of this distribution, even exogenously, will increase policy insights. For example, the distribution of agriculture households over various classes is partly determined by past migration patterns and land development policies with respect to rate of land development, size of each farm, and priorities given to settlers by their sectoral origin. As another example, certain government policies can be class specific. Fertilizer and credit subsidies can be given only to padi farmers below five acres. The aggregation procedure will capture these class specific policies and then examine their impact with respect to other farmers, other sectors etc.

12. Specifically, aggregation will result in:

i) supply schedule of various agricultural commodities;

ii) demand schedule of various intermediate agricultural inputs and investments; and

iii) excess demand and supply of agricultural labour to be utilized in the non-agricultural sector.

These can then be matched against what are assumed to be exogenous to the EPU/FAO cooperative effort in ASA[1]. At this stage, price adjustment mechanisms can be introduced, thus resulting in price determination. Alternatively, an iteration procedure can be employed until demand is consistent with supply in each market. However, as real income levels are sensitive to price changes, some sort of price analysis or projection is preferable. This will also allow the estimation of costs involved in any price support or price selling ceiling policies. For example, the extent of price support necessary to achieve self sufficiency in rice can be estimated.

13. After consistency or equilibrium is obtained, it is merely a computational procedure to go back to various agricultural household classes and reconstruct their incomes. In this manner, income levels and distribution among agricultural households can be obtained.

Some proposed policy analysis exercises

14. Malaysian agriculture is typified by its limited interdependence between subsectors and activities. However, preliminary findings of the Malaysian CPS has already indicated increasing interdependence among agricultural subsectors in the agricultural labour market in the near future. This expected drastic change is the result of increasing labour utilization in land development schemes. A tight labour market will have important implications on the competitiveness

[1] See paragraph 6

of various export crops(especially rubber) in the world market, the cost of self sufficiency in rice and income distribution within the agricultural sector. The ASA model can be used to examine these issues under alternative assumptions of land development policies such as rate of land development for various crops, size of farms and priority rules in the selection of settlers.

15. Although currently there is limited interdependence between agricultural subsectors, interdependence between farmers producing the same commodities is, needless to say, extremely high. Politically motivated subsidization policies, directed at a particular class of farmers (e.g. padi farmers below 5 acres in a certain state) can have important repercussions for other farmers producing the same commodities. As an example, provision of irrigation (a subsidy) to padi farmers can possibly contribute to elimination of remaining single crop padi farmers, if rapid growth of domestic demand for rice cannot be generated. The ASA model, by disaggregation in the dimension of farm size, can therefore take into account policies directed at a particular class of farmers. Price output and resource use implications at the more aggregated commodity level can then be determined, then related to other classes of farmers and income distribution implications derived.

16. The macroeconomic basis for the ASA model provides what is essentially "market response" to changing demand and resource availability conditions. The "market response" may be socially undesirable and some sort of government intervention called for. As an example, given the growth rate of vegetable demand, the "market response" indicates that an increasing share

of vegetable production and value added in vegetables accrue to already well off farmers - thus worsening income distribution. We then proceed back to the microeconomic models of poorer farmers with vegetable potential and examine why they have not responded to increases in vegetable demand. If one finds low farm-gate vegetable prices to be the reason, because of transportation considerations, the government may then study the costs and benefits of subsidizing transportation of vegetables from low income farmers to consumption centres. The subsidization programme may narrow transportation margin, thus raising farm gate prices. As an another example, if the microeconomic models indicate the binding constraint to be availability of hired farm labour for harvesting, the necessary government policy may be to subsidize credit facilities for the purchase of semi-mechanical harvesting tools, coupled with extension on the use of these tools.

17. The above provide some examples of possible policy analysis exercises. However, it should be emphasized that the design of an ongoing agricultural analysis system should not be solely determined by getting answers to specific policy questions. Otherwise, usefulness of the agricultural analysis system will be limited to the policy questions posed. A more profitable approach is to design the system with the view of "let's see what's going on", and then generate policies needed to achieve certain social objectives such as the NEP. This approach is especially valid since most social objectives can be formulated in terms of the three variables: income distribution, economic growth and employment. A system of very general applicability can therefore be designed if the above three variables are considered endogenously.

Data Availability and Requirements

18. It can be easily argued that existing agricultural data in Malaysia will not support an ASA effort of this sort. The statement will also hold if the model is restricted to West Malaysia. The last agricultural census (West Malaysia) was conducted in 1960. Data collection effort since then was limited to regional and crop specific farm surveys of smallholders conducted by the Department of Agriculture. The Department of Statistics conducted a national (West Malaysia) crop survey in 1967/68, aimed at collecting information on area and yield of various crops. Data on the estate sector is collected through surveys employing the mailed questionnaires techniques. Data on land development schemes can be obtained from agencies or authorities responsible for land development.

19. It is felt that a rather comprehensive picture of West Malaysian agriculture can be built up from the 1960 agricultural census and basic records of various agricultural surveys As the agricultural surveys are generally regional in coverage, this will involve assumptions (not necessarily unreasonable) about their applicability to the whole of West Malaysia. Specific sectors where virtually no data exists are identified as:

- III e.) Livestocks.
- III f.) Other mixed farmers.
- IV) Landless agricultural workers.
- V) Fisheries.

20. Despite these data gaps, it is still deemed useful to proceed with the development of an ASA model. Intelligent guesstimates can probably be made regarding the aggregate

behaviour of sectors mentioned in the previous paragraph. The alternative of not implementing an ASA model implies analysis of agricultural development policies with similar data and knowledge gap, and without a coherent framework of analysis. Further, it can be expected that missing data will in time become available. In fact, constructing an ASA model will specifically identify required missing data and thus narrow the scope of future data collection effort without a lost in effectiveness.

21. The FAO Malaysian CPS can be classified as an agricultural analysis system utilizing existing published data. Since the EPU/FAO ASA model is essentially an extension of the Malaysia CPS, it might be worthwhile to examine differences between the two and get a perspective on new data requirements. What is "added in" to the CPS will be:

i) Microeconomic basis for output supply and intermediate inputs demand responses, disaggregated by socio-economic household types.

ii) Further disaggregation of socio-economic household types to minimize income variance within each group, and thus generating a clearer picture of income distribution.

iii) Price analysis. / Point i) above can be accomplished by farm management studies - not an impossible task given farm surveys carried out by the Department of Agriculture. Point ii) can be based on poverty papers prepared by EPU and farm surveys by the Department of Agriculture. Point iii) is more rigid in data requirements and methodology. Supply functions can be based on i) but demand functions will have to be estimated econometrically. Failing this, one can assume various income and price elasticities of demand (based on FAO publications) and proceed on a trial and error basis.

A programme of work

22. The programme of work depicted in the following diagram assumes the ASA model is for West Malaysia. Further, we assume that additional data collection can utilize existing data collection facilities and manpower in the Department of Agriculture. A computational cost of US$30,000 should be allowed.

23. The determination of number of households by socio-economic classes is essentially a migration study. It is therefore possible to formulate this aspect of ASA as an UNFPA/FAO economic-demographic project in Malaysia.

Possible extension

24. Labour is probably the commodity considered in ASA with the least spatial mobility. Therefore some form of regionalization of the ASA model might be desirable in order to avoid regional inconsistencies between supply and demand of agricultural labour. Since disaggregation in the spatial dimension will involve a considerable increase in complexity in the model, it is proposed that this aspect of ASA be left as a possible future refinement of the model.

	1/7/75	1/1/76	1/7/76	1/1/77	1/7/77	1/1/78	1/7/78
Theoretical work and familiarization with data							
Tabulations of previous surveys							
Microeconomic models and farm budget studies							
Additional data collection (if necessary) and processing							
Complete model and interaction with EPU plan frame							
Refinements							Total man years
FAO manpower	1	1	1	1	1	1	3.0
EPU manpower	1	2	2	2	2	2	5.5
UNFPA/FAO migration project							8.5

RESEARCH - GEN.

Those listed below March 26, 1975

B. B. King, Development Policy Signed B. B. King

Informal Guidelines for Panels
Reviewing Research Proposals

Research proposals are reviewed by a panel of staff members before being considered by the Research Committee. The attached note specifies the procedure and content of this review. As such, it is of interest to those preparing research proposals for submission to the Research Committee.

Could you please ensure that a copy of these guidelines reaches all those who are preparing, or might prepare, research proposals.

Attachment

Distribution

Directors, Deputy Directors, Advisors and Division Chiefs in DPS and CPS.
Regional Office Directors, Deputy Directors, Assistant Directors, Assistants to Directors, Chief Economists and Senior Economists.
Members of the Research Committee

DCRao:gm

March 26, 1975

INFORMAL GUIDELINES FOR PANELS REVIEWING RESEARCH PROPOSALS

The guidelines are presented in two parts: (A) Procedure and (B) Substance.

A. Procedure

1. The Secretary to the Research Committee will arrange for a panel to review research proposals before consideration by the Research Committee.

2. The Chairman of the Panel will, in general, be a member of the Research Committee. Members of the panel will, in general, be two or three Bank staff members with relevant interests and qualifications.

3. The panel will have one or more meetings with the principal researchers to discuss the research proposal. The principal researcher or the panel may invite other researchers and research supervisors (e.g. department director, division chief, etc.) to attend this meeting. The Secretary to the Research Committee may participate in this discussion but is not a member of the review panel.

4. The review panel will submit a memorandum to the Secretary to the Research Committee containing its recommendations concerning the financing of the research proposal and the reasons for its recommendations. The review panel may also suggest modifications of the research proposal, after discussing these suggestions with the originators of the research proposal.

5. The originators of the research proposal may submit a rebuttal to, or a member of the review panel may submit a dissent from, the panel recommendation. Such memoranda should be sent to the Secretary to the Research Committee.

6. The Secretary to the Research Committee will forward the research proposal, panel recommendations and subsequent memoranda to the Research Committee for their consideration.

NOTE: General information concerning the Bank's research program can be had from Bank Group Research Program, January 8, 1975. (For copies call Ext. 5001).
Brief descriptions of ongoing research projects are published in World Bank Research Program: Abstracts of Current Studies, October 1974. (For copies call Ext. 2057).
General enquiries concerning the research program should be addressed to the Secretary to the Research Committee (Ext. 6003); queries on particular research projects to the departments responsible.

B. Substance

Members of the review panel should feel free to discuss all aspects of the research proposal with the originators of the proposal and with whomsoever they wish to consult. They may call upon the Secretary to the Research Committee for any assistance.

The following is a check list of items/questions to assist the panel in its assessment of a research proposal. Originators of research proposals are well advised to cover these points in the proposal itself, where appropriate.

1. Objectives

a) What is the problem to which the proposal is addressed? Is the justification for this research more solid than an assertion that "there is a need to know more" about the topic? What precisely is the use of this research to the Bank, member governments or anyone else?

b) What are the hypotheses? i.e. what is it expected to prove or disprove?

c) Is the subject of research of general interest, rather than something specific (e.g. Information gathering relating to a single sector in a single country) which should be done as part of operations?

2. Opportunity Cost of the Proposed Research

a) Has the Research Committee considered an "overview" of the subject?* If so, does the proposal conform with the priority guidelines agreed to?

b) If no overview has been considered by the Research Committee, does the proposal have a discussion of what research is being done elsewhere in this field and how the proposed research relates to it?

c) Why is the subject of the proposed research particularly important in relation to other possible research in the same broad field?

---

* Ideally, an overview would: (i) identify the nature of the problems that we are trying to solve in the real world; (ii) identify those lines of research which, on the face of it, are already mining low grade ore; (iii) identify those lines of research which might have a higher pay-off; (iv) identify which of the lines in (iii) are particularly suitable for the Bank.

3. Technical Competence

a) Is the methodology appropriate to the defined objectives?

b) Are the staff and consultants properly qualified?

c) Is there adequate Bank staff time allocated to supervising hired consultants?

4. Phasing

a) What are the points at which the progress of the project can be reviewed by the Research Committee to determine whether the project deserves continued financing? If the research proposal does not clearly identify these phases, the review panel ought to do so.

b) Is it clear from the proposal precisely what the output of each phase of the research is going to be?

c) Are there additional intermediate outputs that should be required of the researchers?

5. Departmental Coordination

Has the research proposal been seen by the relevant departments in the Bank and IFC, as signified by their having signed Part II of the research proposal form? For pragmatic reasons, signatures on the form should be interpreted simply as signifying awareness of the proposal. If departments feel strongly for or against a proposal, they ought to feel motivated enough to write a memorandum expressing their views.

6. Choice of Countries

a) Is the choice of countries appropriate in relation to (i) relevance of problems; (ii) availability of information/collaborators; (iii) desirability of avoiding excessive geographical concentration of research projects; (iv) Bank/country relations.

b) Have steps been taken to exploit interrelationships between this research proposal and other research projects in the same subject or country? (The booklet Abstracts of Current Studies, which has a table of contents by subject and an index by countries, provides relevant information).

7. Collaboration

a) What is the extent of collaboration with researchers in LDC's? If there isn't any, why not?

b) If collaboration is proposed with a developed country institution, what special reasons can be adduced in justification?

8. Dissemination

a) Who is expected to use the results of this research?

b) What steps, beyond "publication", will be taken to ensure that the results of the research reach the user in a suitable form?

c) Has the potential user specifically supported the project (apart from just saying OK)?

9. Budget

a) Is there an itemized budget, by fiscal year, for each phase of the proposed research?* The panel should not attempt to resolve budgetary issues but rather to alert the Secretary to the Research Committee who can then follow them up.

10. Rejected Proposals on Subjects of Interest

If the panel regards the subject of special interest but the research proposal in its present form inadequate, it should make a recommendation to the Research Committee that steps be taken to improve the proposal and, to the extent possible, describe these steps.

---

* The information should be consistent with Part IV of the research proposal form and should explain the bases of the budget estimates, e.g. the rate per man-month of consultants' time; the fares and per diem costs of travel. Data processing estimates should have been discussed with the Computing Activities Department. The amount of Bank staff time should be specified.

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

Research

OFFICE MEMORANDUM

TO: Those listed below

DATE: March 26, 1975

FROM: B. B. King, Development Policy BBK

SUBJECT: Informal Guidelines for Panels Reviewing Research Proposals

Research proposals are reviewed by a panel of staff members before being considered by the Research Committee. The attached note specifies the procedure and content of this review. As such, it is of interest to those preparing research proposals for submission to the Research Committee.

Could you please ensure that a copy of these guidelines reaches all those who are preparing, or might prepare, research proposals.

Attachment

Distribution

Directors, Deputy Directors, Advisors and Division Chiefs in DPS and CPS.
Regional Office Directors, Deputy Directors, Assistant Directors, Assistants to Directors, Chief Economists and Senior Economists.
Members of the Research Committee

March 26, 1975

INFORMAL GUIDELINES FOR PANELS REVIEWING RESEARCH PROPOSALS

The guidelines are presented in two parts: (A) Procedure and (B) Substance.

A. Procedure

1. The Secretary to the Research Committee will arrange for a panel to review research proposals before consideration by the Research Committee.

2. The Chairman of the Panel will, in general, be a member of the Research Committee. Members of the panel will, in general, be two or three Bank staff members with relevant interests and qualifications.

3. The panel will have one or more meetings with the principal researchers to discuss the research proposal. The principal researcher or the panel may invite other researchers and research supervisors (e.g. department director, division chief, etc.) to attend this meeting. The Secretary to the Research Committee may participate in this discussion but is not a member of the review panel.

4. The review panel will submit a memorandum to the Secretary to the Research Committee containing its recommendations concerning the financing of the research proposal and the reasons for its recommendations. The review panel may also suggest modifications of the research proposal, after discussing these suggestions with the originators of the research proposal.

5. The originators of the research proposal may submit a rebuttal to, or a member of the review panel may submit a dissent from, the panel recommendation. Such memoranda should be sent to the Secretary to the Research Committee.

6. The Secretary to the Research Committee will forward the research proposal, panel recommendations and subsequent memoranda to the Research Committee for their consideration.

NOTE: General information concerning the Bank's research program can be had from Bank Group Research Program, January 8, 1975. (For copies call Ext. 5001).
Brief descriptions of ongoing research projects are published in World Bank Research Program: Abstracts of Current Studies, October 1974. (For copies call Ext. 2057).
General enquiries concerning the research program should be addressed to the Secretary to the Research Committee (Ext. 6003); queries on particular research projects to the departments responsible.

B. Substance

Members of the review panel should feel free to discuss all aspects of the research proposal with the originators of the proposal and with whomsoever they wish to consult. They may call upon the Secretary to the Research Committee for any assistance.

The following is a check list of items/questions to assist the panel in its assessment of a research proposal. Originators of research proposals are well advised to cover these points in the proposal itself, where appropriate.

1. Objectives

a) What is the problem to which the proposal is addressed? Is the justification for this research more solid than an assertion that "there is a need to know more" about the topic? What precisely is the use of this research to the Bank, member governments or anyone else?

b) What are the hypotheses? i.e. what is it expected to prove or disprove?

c) Is the subject of research of general interest, rather than something specific (e.g. Information gathering relating to a single sector in a single country) which should be done as part of operations?

2. Opportunity Cost of the Proposed Research

a) Has the Research Committee considered an "overview" of the subject?* If so, does the proposal conform with the priority guidelines agreed to?

b) If no overview has been considered by the Research Committee, does the proposal have a discussion of what research is being done elsewhere in this field and how the proposed research relates to it?

c) Why is the subject of the proposed research particularly important in relation to other possible research in the same broad field?

---

* Ideally, an overview would: (i) identify the nature of the problems that we are trying to solve in the real world; (ii) identify those lines of research which, on the face of it, are already mining low grade ore; (iii) identify those lines of research which might have a higher pay-off; (iv) identify which of the lines in (iii) are particularly suitable for the Bank.

3. Technical Competence

a) Is the methodology appropriate to the defined objectives?

b) Are the staff and consultants properly qualified?

c) Is there adequate Bank staff time allocated to supervising hired consultants?

4. Phasing

a) What are the points at which the progress of the project can be reviewed by the Research Committee to determine whether the project deserves continued financing? If the research proposal does not clearly identify these phases, the review panel ought to do so.

b) Is it clear from the proposal precisely what the output of each phase of the research is going to be?

c) Are there additional intermediate outputs that should be required of the researchers?

5. Departmental Coordination

Has the research proposal been seen by the relevant departments in the Bank and IFC, as signified by their having signed Part II of the research proposal form? For pragmatic reasons, signatures on the form should be interpreted simply as signifying awareness of the proposal. If departments feel strongly for or against a proposal, they ought to feel motivated enough to write a memorandum expressing their views.

6. Choice of Countries

a) Is the choice of countries appropriate in relation to (i) relevance of problems; (ii) availability of information/collaborators; (iii) desirability of avoiding excessive geographical concentration of research projects; (iv) Bank/country relations.

b) Have steps been taken to exploit interrelationships between this research proposal and other research projects in the same subject or country? (The booklet Abstracts of Current Studies, which has a table of contents by subject and an index by countries, provides relevant information).

7. Collaboration

a) What is the extent of collaboration with researchers in LDC's? If there isn't any, why not?

b) If collaboration is proposed with a developed country institution, what special reasons can be adduced in justification?

8. Dissemination

a) Who is expected to use the results of this research?

b) What steps, beyond "publication", will be taken to ensure that the results of the research reach the user in a suitable form?

c) Has the potential user specifically supported the project (apart from just saying OK)?

9. Budget

a) Is there an itemized budget, by fiscal year, for each phase of the proposed research?* The panel should not attempt to resolve budgetary issues but rather to alert the Secretary to the Research Committee who can then follow them up.

10. Rejected Proposals on Subjects of Interest

If the panel regards the subject of special interest but the research proposal in its present form inadequate, it should make a recommendation to the Research Committee that steps be taken to improve the proposal and, to the extent possible, describe these steps.

---

* The information should be consistent with Part IV of the research proposal form and should explain the bases of the budget estimates, e.g. the rate per man-month of consultants' time; the fares and per diem costs of travel. Data processing estimates should have been discussed with the Computing Activities Department. The amount of Bank staff time should be specified.

OCDE
ORGANISATION DE COOPÉRATION ET
DE DÉVELOPPEMENT ÉCONOMIQUES

OECD
ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

94, rue Chardon-Lagache
75016 PARIS

CENTRE DE DÉVELOPPEMENT
DEVELOPMENT CENTRE

Téléphone : 527 65-19
Télégrammes : DEVCENTRE
Télex : 62 160 OCDE PARIS

CD/EDS
/Frv

Paris, 24th March 1975

Mr. R.S. Mc Namara
President
IBRD - IFC
1818 H Street N.W.
WASHINGTON D.C. 20433

Dear Sir,

For some time now, the Development Centre has attempted to establish a list of government-sponsored research projects, in the field of social and economic development, carried out by OECD Member Governments. For your information I attach a copy of the document giving the material we have been able to obtain so far. This first attempt has met with extremely favourable reactions from researchers in the social and economic development field, in that it heps to stimulate co-operation, as well as reducing the dangers of duplication.

Following the discussions at a meeting of government research officers, held in April 1973 (a copy of the summary record is attached), the information now submitted should :

(a) concentrate on the research into social and economic problems ;

(b) be limited to reseach projects financed by foreign aid agencies ;

(c) include a description of approximately three lines giving specific information considered useful ;

(d) contain some appropriate indication on the size of the effort (e.g. budgetary implications or man-months required) ;

Mr. Hoffman

(e) be restricted to research activities initiated or published during the last twelve-months.

Also, it was felt that it would be useful to secure co-operation from international organisations active in the development field and to include their research in the list. We are therefore addressing this request to the organisations in the attached list.

For your information, please, note that in addition to updating the information we already received last year, we have written to those OECD governments which have not previously participated in the activity to solicit their co-operation.

I would be grateful if your Organisation could provide us with this information by the end of April 1975 at the latest. In fact your Organisation may already have a list of research projects under way and it would be suficient if you sent us such a list which we could process ourselves.

Thank you in advance for your co-operation in this matter.

Yours faithfully

Kahnert

Friedrich KAHNERT
Head of Research

Encl. CD/EDS(73)4 - list of government-sponsored research
CD/AB(73)3 summary record of April (1973) meeting of government research officers.

Research

Mr. J. Merriam, Information and
Public Affairs Department
B. B. King, Development Policy

March 24, 1975

Evaluation and Dissemination of Research

I refer to Mr. Rao's memo of October 22. We have recently received a copy of the OECD's paper on the Bank, which was a disaster. A copy of my letter of March 19 (without the attachments) is attached. So I think we can close the file on this one, at least for the time being.

There seems to be some difficulty in locating the documents sent with Mr. Rao's memo. Could you have another try? They may be of some use for future reference.

Attachment

BBKing:gm

Research

Research Committee Members | March 21, 1975

D. C. Rao, VPD

Minutes of Meeting on March 19, 1975

Present: Messrs. Chenery, B. de Vries, Karaosmanoglu, B. B. King, Lerdau, Ray, Thalwitz, Waelbroeck, Mrs. Hughes

Present for Item 1: Messrs. Pyatt and Ahluwalia

Income Distribution Overview

The Committee discussed the paper prepared by Mr. Ahluwalia. Messrs. Graham Pyatt and Montek Ahluwalia of the DRC participated in this discussion. Mr. Ahluwalia's paper identified seven categories of research on income distribution:

(i) Developing a factual base;
(ii) Measures of inequality and social welfare;
(iii) Formal modelling of growth and distribution;
(iv) Modelling a part of the economy;
(v) Studying isolated relationships;
(vi) Studying the historical experience of growth and distribution;
(vii) Studying the impact of particular policy instruments.

Mr. Ahluwalia suggested that while topics (v) to (vii) were apparently of higher priority, the problem was that studies in these categories tended to be descriptive, methodologically weak and country particular. He asked for guidance on the relative weight he should place on these various categories in designing future research. No clear guidance was forthcoming. It was generally agreed that there was a striking need for research that helped operational people make the decisions regarding policy instruments that they were routinely making already; and that it was possible to have either relevant or irrelevant research in each of the categories identified by Mr. Ahluwalia. It was suggested that additional work on collecting data or modelling should have a clear policy focus. It was suggested that the Income Distribution Division should canvass the "doers" and "thinkers" to draw up a list of policy instruments that influence income distribution, were particularly important for Bank operational decisions and were researchable.

In summary, it was suggested that an imaginative research proposal on particular policy instruments would be preferred to a dull, though methodologically superior proposal in the other categories identified in the overview paper.

RPO 280

The Committee agreed to provide additional funds for the completion of the project "Land Reform in Latin America" (RPO 280). Mrs. Hughes suggested the possibility of paring down the request for additional funds. The Committee directed Mrs. Hughes and Mr. King to settle on a figure and increase the authorization for RPO 280 accordingly.

RPO 276

The Committee approved the request for an additional $5,900 for the project "Pricing and Investment in Telecommunications".

RPO 233

It was remarked that the completion report appeared to be rather guarded in its evaluation of the project. Mr. Thalwitz, however, said he was aware of this project and considered it an excellent study. It was particularly useful as a manual for new financial analysts entering the Bank.

Problem Projects

It was suggested that compiling and distributing a list of problem research projects might serve to exert salutary pressure on the supervising departments.

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
B. B. King, Lerdau, Schulmann, Thalwitz,
van der Tak, Vergin, Waelbroeck, Yudelman,
Mrs. Hughes

cc: Messrs. Pyatt, Ahluwalia, Duloy

DCRao:gm

RESEARCH-GEN

Mr. Hollis B. Chenery, VP - VPD

March 25, 1975

B. B. King, VPD Signed B. B. King

Information for Executive Directors:
Bank Research

1. Mr. Damry's memorandum of February 14 raises the question of "in-house" research in the 1976 annual report. In answering this, two points of clarification appear to be in order.

2. The first is that the bulk of "in-house" research is, in fact, an integral part of the so-called external research program, in one form or another. A rough breakdown of staff time on all research in DPS/CPS (FY74) would be as follows:

	Percent
RPO and RPO preparation	75
Commodities Division1/	5
Other in-house research	20
	100

I do not think that this point is sufficiently understood. It may well be a good idea to bring it out into the open.

3. The second point is that, if the object is to have a comprehensive view of all research being, in some sense, initiated by the Bank (whether included in the annual report or not), then there are two other sorts of research which deserve consideration. One of them is certainly as important as the "other" in house research. Maybe the other is too. They are:

(a) Research financed through departmental or other consultants' budgets.

(b) Research financed under loans and credits.

4. On research financed by hiring consultants outside the regular external research program, we know practically nothing. Our suspicion would be that much of the expenditure of this type is linked to the "other in-house research" through common research projects. In other words, the real distinction is between RPO and other research. Both use staff-time and consultants.

1/ Listed separately because it is a fairly well-defined category.

5. As you are aware, we have gradually been collecting information on research financed under loans and credits. We have circulated our preliminary list for FY74 and I believe we have now received all the comments we are likely to get. We still have a fair amount of work to do in order to extend this activity to current projects and to projects before FY75. In the meantime, Mr. van der Tak and myself will be preparing a note on the administrative arrangement that may appear necessary to exercise better control over research of this kind. We believe that this is a necessary first step to smoke out the issues, if any, before thinking of embarking on a policy paper.

Information System for Other In-house Research

6. The principal source of information on staff time is, of course, the Time Reporting System. For DPS there are three codes: RES 01 for RPO research; RES 02 for RPO preparation; and RES 03 for all other research. CPS does not have this classification. Although we are mainly concerned in this context with the third of these, a few comments are in order for the first two.

7. The first code identifies not only the fact that time was spent on RPO research, but also the particular RPO project involved. In principle, therefore, the time spent in house on any RPO project can be identified. However, we also get parallel information from status reports on RPO projects. We have noticed that there are discrepancies between the status reports and the TRS system. In FY74, for example, the TRS suggests a figure of not much more than two man-years of external research for CPS, while the status reports suggest something closer to ten man-years. If P & B carries out some sort of audit of the way the TRS system is working, this is one point they may wish to include.

8. The second code does not identify the RPO project, because the project number is not known at the time. RPO preparation accounts for a sizeable proportion (15-20%) of all in-house research, but I do not think it makes any sense to carry this identification any further. However, as noted, CPS does not use this particular code. Again, steps might be initiated by P & B to ensure Bank-wide consistency.

9. This brings me to the main problem, the identification of the remaining research, which in FY74 took something of the order of 15-20 man-years (depending on the conversion factor from man-months). At the moment, this is simply an amorphous total, which one can only break down by division.

It is obvious that breakdown by project can only be done by instituting a sub-code system similar to the RPO numbers which would identify the specific projects being undertaken. It is equally obvious that one must have some "stop-loss" minimum size in order to identify only the major activities and to prevent total submergence in paperwork. As a corollary, a description of such projects would be forwarded by the departments to the front offices of CPS or DPS, as the case might be, at the time of initiation of the project and at the time of completion. Task forces (e.g. Energy, Urban Poverty) would be treated as single projects.

10. Specifically, the following steps would be required. I am only indicating the procedure in the DPS. Presumably a parallel system would be required in the CPS.

i) P & B would assign an individual sub-code series to each department which each department would assign to its own in-house (or non-RPO) research projects.

ii) Whenever a department decides to initiate a research project requiring more than three man-months or, say, $20,000 of consultant fees (these figures are, of course, negotiable), it would (a) assign that project a number in its own series and (b) instruct the relevant division to use that number in the TRS and (c) send a brief project description to you (with copies to Mr. Stern and myself) including the names of those involved.

iii) When the project was completed, a brief completion report would similarly be sent, together with a list of the resulting documents.

iv) In the Annual Report, the completion reports would be used at the appropriate place (by subject) in the equivalent to this year's Section III. I do not think "in-house research" would merit a separate section, since, as already explained, it is a misnomer.

Bureaucratic Cost

11. While, at first glance, these suggestions seem like another heavy-handed addition to the Bank's procedures, I am not sure that it is quite as bad as it looks. Most of

the procedures are in being and it simply means extending the coverage. The number of projects is not likely to be very large. The attached list of DED studies shows that there are under 20 "internal" ones and a number of these might well not qualify.

Document Identification

12. While the suggestions made in my memorandum of February 26 regarding the creation of divisional document series do not depend on this system nor vice versa, there is some merit in consideration and introduction of the two processes at the same time.

Consideration of the Proposal

13. If you are broadly speaking in agreement with this approach, the subject might be discussed at a Directors' Meeting in DPS. I would also contact CPS to obtain their reaction.

Attachment

cc: Messrs. Stern
van der Tak
Schulmann
John King
D. C. Rao

BBKing:gm

DED Studies

	Current (i.e. FY75)		Proposed for FY76	
	RPO	Internal	RPO	Internal
Front Office	3	0	0	0
Industry	4	4	4	3
Urban	6	5	1	3
Population	6	4	3	6
Rural Development	6	4	2	3
Finance	2	3	2	2
	27	20	12	17

Source: Research in Development Economics Department, February 11, 1975.

March 25, 1975

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

File

OFFICE MEMORANDUM

TO: Messrs. B. King & D. Rao (VPD) [through J. Duloy DRC Director)

DATE: March 21, 1975

FROM: Montek Ahluwalia (DRCID Chief)

SUBJECT: Income Distribution Division: Research Submission

1. The following is a list of external research project submissions which we will be sending to the Research Committee for the second meeting in April-May together with other DRC proposals. They are all continuations or extensions of ongoing projects.

(i) ECLA (RPO 283)

Approximate FY76 budget $50,000.

This project will move from the phase of data collection and evaluation to a more detailed study of income distribution in one, and possibly two, Latin American countries. There will also be a "slippage" (implying corresponding cost overruns) of about two months over the original FY76 work program.

A detailed project proposal will be submitted in late April following a review of project results to date.

(ii) ESCAP (RPO 308)

Approximate FY76 budget $50,000.

This project began in March 1975 instead of October 1974 as originally scheduled. There are no cost overruns but we are submitting the FY76 proposal in April in order to allow a more accurate assessment of computing costs arising out of negotiations currently in progress between Mr. Pravin Visaria (consultant) and the Bureaus of Statistics for Guyarat and Maharashtra State in India for processing of Indian data.

(iii) Short and Long Run Influences on Income Distribution (RPO 206)

Approximate FY76 budget $37,000.

This project proposal is basically an extension of the ongoing work on the Korea model focussing on the recalibration of the model to undertake simulations of structural change. We hope to submit a proposal following a seminar on dynamic results of ongoing work on Korea which focusses on relatively short term policy intervention.

(iv) ECIEL Project (RPO 285)

Approximate FY76 budget $80,000.

This project is a continuation of an ongoing project which has been extensively discussed in the past. The current request is to finance analysis of available data at Brookings.

(v) Malaysia Employment and Income Distribution (RPO 294)

Approximate FY76 budget $15,000.

This is only a contingency submission in case of slippage. Ongoing work on this project depends very much on the timing of the basic mission and may therefore slip into FY76. There are no cost overruns.

(vi) Growth, Employment and the Size Distribution of Income (RPO 284)

Approximate FY76 budget $70,000.

This is a continuation of the Yale Project and a submission will be made following a seminar in April or early May on results for Taiwan.

(vii) Benefits of Public Expenditure: Colombia (RPO 296)

Approximate FY76 budget $16,000 [Colombia component only]

This is a joint project with the ECD. The amount represents mainly forecast expenditures for the completion of the project. This amount is higher than the originally forecast $8,000 (approx.) because of additional cost of survey and revised computing estimates. The research proposal submission will be joint with ECD.

MSAhluwalia:jgp

cc/ J.Duloy
G.Pyatt
B. Balassa

Research

March 21, 1975

Professor R. J. Smeed
Traffic Studies Group
University College London
London, WC 1, England

Dear Professor Smeed:

Bikeways Research

I have just returned to Washington, having completed my long mission to East Africa and the Far East.

I am writing to thank you for your kindness in seeing me at odd hours when I was in the U.K. and to inform you that I have already spoken to Messrs. Dunkerley, Roth and others concerning the bikeways research project. We will be preparing within the next fortnight a slightly more detailed statement of our objectives and priorities in this area - which at the moment appear to focus on speed-flow relationships and the integration of bikeways into the total transport system. We will be in touch with you again just as soon as we have completed this work.

Sincerely yours,

C.G.H

Clell G. Harral
Chief, Transport Research Division
Transportation & Urban Projects Department

CGHarral:phm

cc: Messrs. Dunkerley
Roth

Research

March 21, 1975

Dr. Mario di Lullo
North Atlantic Treaty Organization
1110 Bruxelles
Belgium

Dear Dr. di Lullo:

I am very sorry for the long delay in replying to your letter of January 21, 1975. I was away from Washington on mission when it arrived. I notice that the project was to be presented to the members of the Advisory Panel on the Research Grants Programme at their meeting on February 25, 1975. I am, therefore, not certain that my comments will still be of use to you.

We were approached by Miss Jorgenson a few months ago regarding the possibility of World Bank financing for her research proposal. We were not in a position to finance such research although we expressed interest in the study which she proposed to undertake. That is the extent of our contact with her. She impressed me as a very serious and determined young lady and I would imagine that she would be energetic and effective in carrying out the project, but we are not in a position to vouch for the technical qualifications of either Miss Jorgenson or her associates.

On the other hand, the nature of the project seems quite worthwhile. Such a comparative study of land-use legislation, particularly in the Mediterranean area with its large numbers of tourist arrivals and its high level of existing and proposed tourist accommodation facilities, should be of use to the authorities who must assess the likely impact of further tourism development in these areas, and could possibly provide a guide to improved land-use legislation. My impression of the proposed cost of the study is that it is very modest indeed, and must reflect a degree of dedication and personal commitment on the part of the people involved.

Sincerely yours,

Stokes M. Tolbert SMT
Director
Tourism Projects Department

SMTolbert:va

Research

Mr. R. McPheeters, EPDDR

March 20, 1975

D. C. Rao, VPD

Household Surveys

It has periodically been suggested that there should be some system for storing the information that is collected by surveys paid for by the Bank through research projects or through loans and credits. A preliminary step in this effort would be to compile the basic information concerning these surveys. USAID has attempted this for household surveys paid for by them. A copy of this is enclosed.

Are you aware of other such compilations? Does the UN Statistical Office have any system of maintaining information concerning ad hoc surveys run by various information statistical organizations?

behind file

Enclosure - n/a

DCRao:gm

Research

March 19, 1975

Mr. F. Kahnert
Head of Research
OECD
94, rue Chardon-Lagache
Paris 75016, France

Dear Mr. Kahnert:

I trust that you received my telex of March 17 and will not be too surprised or shocked at our reaction. In case you did not get a chance to look at the Annual Report referred to, I am enclosing a copy together with a copy of the current "Abstracts".

In short, we find the paper on Bank research unacceptable. The attached note lists detailed comments, most of which concern errors of commission, but there are also a few of omission. I have not attempted to cover the latter field comprehensively. Nor have I, in the circumstances, tried to get the comments of other Departments which would take time and add only marginally to our views.

There is one sin of omission which I do think is serious. The report has "Development Policy Staff" in the title, to be sure, but this gives a very distorted view of research in the Bank. There is a great deal of research originating in the Central Projects Staff and some in the Regional Offices. See the list in the Annual Report in Appendix Table 1.

If one removes the statements of would-be fact, most of which are not correct, there is very little left except an occasional superficial observation.

In rejecting the paper so unequivocally, I would like to remove any suspicion that we are being touchy about criticism. The fact is that our own Annual Report (Section IV) is much more critical than the paper.

I very much regret this, but I do not see how we could conscientiously agree to letting this paper -- or any touched-up version -- pass. I hope we can treat this as one of those unfortunate accidents of life and that our good relations with the Development Centre will in no way be disturbed. We all have a few skeletons in the cupboard.

Yours sincerely,

Benjamin B. King
Research Adviser
Development Policy

Attachments

cc: Mr. Fossi
OECD

BBKing:gm

Research

Mr. Shamsher Singh, Chief, EPD/CE

March 18, 1975

Enzo R. Grilli, Economist, EPD/CE

Visit to the Industrial Bank of Japan: Tokyo, January 27 and February 4, 1975

1. During my stay in Japan in connection with our research on the future prospects for rubber, I had the opportunity of visiting the Industrial Bank of Japan (IBJ) where I had interviews with various officers of the Industrial Research Department.

2. IBJ has a large and well equipped research department which supports its lending activities to such major Japanese industries as chemicals, petroleum refining, electrical machinery, automobiles, shipbuilding, textiles, metals and pulp and paper. In fiscal year 1973/74, the IBJ volume of lending was $14 billion. Of the domestic loans, 53.4% went to manufacturing industries and 46.6% to other sectors of the Japanese economy. IBJ maintains close business relations with a broad range of leading industrial corporations such as Mitsubishi Chemical, Sumitomo Metal Industries, Kobe Steel, Hitachi and Ube Industries.

3. After the first set of interviews with Mr. H. Iwasaki, Chief of the Section that deals with Chemicals, Food and Fibers and his colleagues on the specific subject of my visit - the petrochemical industry in Japan and its future - I was invited to return to IBJ and meet with Mr. Takao Kato, Chief Manager of their Research Department. You may recall that Mr. Kato was here in Washington in January 1975 with the Japanese team of economic industrialists and government officials that visited with us and the IMF. During that time he had conversations with you on commodity prices and forecasting methodologies.

4. The IBJ Industrial Research Department is very much interested in establishing a direct work relationship with our Department and particularly with our Division in matters related to commodity forecasting. In Mr. Kato's view, this cooperative relationship could take the form of a) regular exchange of research studies, b) regular exchange of price forecasts and c) cooperation on specific research projects.

5. IBJ is particularly interested in our price forecasts for such products as coal, iron ore, bauxite, copper ore, wood, rubber, cotton, wheat, soybean and maize. They would like to receive our commodity price forecasts on a regular basis and send us in exchange their industry surveys. The IBJ Research Department would also be willing to assist us on specific research studies involving subjects in which they have in-house expertise.

6. In my opinion this type of cooperation with IBJ would be most useful to us. First IBJ is very strong in areas where our in-house expertise is somewhat limited - i.e. chemicals, steel, cement, pulp and paper - (see enclosed organizational chart). Cooperation with IBJ would therefore strengthen our forecasting capabilities for these products. Secondly, Japan is a major market for a number of primary commodities that - unlike Western Europe and North America - we have

difficulties in following. Apart from being able to tap the considerably large resources of IBJ, we would, through them, be able to establish more direct relationships with the Japanese industry and trade. The benefits which we could derive from a better knowledge of the Japanese market are certainly quite large.

7. I would, therefore, recommend that we formally acknowledge the offer of IBJ and accept it.

Enclosure

cc: Messrs. Tims, Holsen, Takeuchi

EG
EGrilli:cw

Research

Technion-Israel Institute of Technology הטכניון-מכון טכנולוגי לישראל

יובל הטכניון תרפ"ד-תשל"ד TECHNION JUBILEE 1924-1974

TECHNION CITY, HAIFA, ISRAEL. TEL: 225111 טל. קרית הטכניון, חיפה 32 000

הפקולטה להנדסה חקלאית
ע"ש פרופ' לאודרמילק
THE LOWDERMILK FACULTY
OF AGRICULTURAL ENGINEERING

March 16, 1975

Mr. John M. Kalbermatten
Chief, Latin American & the Caribbean Section
International Bank for Reconstruction & Development, IBRD
1818 H Street, North West
Washington D.C.
U. S. A.

Dear Sir:

I am sending the attached research proposal in order to get you interested in being involved in it. It seems to me that the information acquired through the last 2-3 decades allows us, through research, the preparation of the suggested techniques for decision making in regards to irrigation systems.

I hope you will be able to participate both professionally and financially. Please let me know of any additional information you'd require in order to consider this proposal.

Sincerely Yours,
D. Karmeli
David Karmeli, Ph.D.
Professor of Agricultural Engineering.

Encl.

Date Received March 25/75
Date Acknowledged MAR 27/75
Assigned to JMK/RE

Misc - 5 - 22

RECEIVED
1975 MAR 24 PM 12: 20
INCOMING MAIL UNIT

DEVELOPMENT OF A RATIONAL APPROACH
FOR ASSESSING IRRIGATION SYSTEMS
AND THEIR MANAGEMENT

Research Proposal

by

D. Karmeli
Associate Professor
Faculty of Agricultural Engineering
Technion-Israel Institute of Technology
Haifa, Israel

W. R. Walker
Assistant Professor
Agricultural Engineering Department
Colorado State University
Fort Collins, Colorado 80523

G. Oron
Research Engineer
Faculty of Agricultural Engineering
Technion-Israel Institute of Technology
Haifa, Israel

Submitted for Review

February 20, 1975

FOREWORD

This proposal was prepared by the authors in Israel during a visit by Dr. Walker. The contents are intended to propose a major research effort in which the Agricultural Engineering Department at the Technion and Colorado State University will cooperate in expanding irrigation technology.

The basic premise on which the idea for this proposal is based is that an urgent need exists to integrate all the numerous facets of irrigation systems and their management into one source. The results will produce a computational model and a comprehensive text on irrigation engineering.

D. Karmeli

W. Walker

G. Oron

ABSTRACT

The development of irrigation technology is at a stage where research is necessary to integrate existing knowledge and evaluate alternatives for better implementation. Factors which are considered when assessing the potential for irrigation in an area include annual cost, labor requirements, water supplies, field and soil characteristcs, energy consumption, cropping patterns, and cultural practices. This proposed study is designed to incorporate each factor in a systematic procedure which evaluates the various irrigation systems and their operation.

Three phases have been logically delineated. The first is the coordination of irrigation regime, equipment costs, and field sizes and dimensions to calculate the optimal system design. Secondly, considerations of system, soil characteristics, irrigation practices, and cropping patterns lead to an analytical description of irrigation efficiency and uniformity. And finally work is proposed to incorporate the two previous phases into a method for selecting or assessing irrigation alternatives for areas where certain resources such as energy, labor, water, land, or capital may be limited.

This proposed work will bring together and summarize most of currently available knowledge of irrigation. A text on the principle and practices of irrigation would readily stem from this work. Thus, the project would produce not only a computational tool for irrigation engineers and planners but also a synopsis of the technology of irrigation for training future specialists.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

i. Title of Proposed Project:

Development of a Rational Approach for Selecting Irrigation Systems and their Management.

ii. Objectives of Research:

Irrigation is becoming an increasingly important factor in supplying world demands for food and fibre. The capital, human, and natural resources prerequisite to efficient irrigation of agricultural lands depend upon the type of system selected, how it is to be operated, and the conditions to which it is applied. Years of research and experience have shown the necessity of maximizing agricultural output with respect to a region's limited resources. However, no successful attempt has been made to integrate important factors into a systematic approach for adapting irrigation systems to local conditions. Since many factors which would normally be considered as part of such decisions are difficult to quantatively define in the format of an objective function, little progress of this nature has been made.

The principal objective of this proposed study is to suggest and verify an analytical approach to selecting irrigation systems for conditions of widely varying characteristics. This project is designed to accomplish the objective in approximately three years. The specific objectives for the three time periods are as follows:

(1) To formulate the computational capability to simulate for various irrigation systems total annual cost, labor requirements, and energy consumption. Since many variations of irrigation system structure are possible, the analysis in this phase of the work will incorporate a minimum cost algorithm to select the one optimal structure for given field size and dimensions.

(2) To develop a program to simulate irrigation efficiency as affected by the kind of irrigation system, cultural irrigation practices, type of crops grown, water quantities and qualities, and field and soil characteristics; and

(3) To integrate the above systems for evaluating resource consumption and efficiency together in a manner which logically ranks the suitability of an irrigation alternative in its application to the local conditions.

The expected results of this study will be both far reaching and explicit. The strategies for deciding upon an irrigation system and its subsequent operation will be those which optimally coordinate local conditions and available resources. When new irrigation systems are proposed where previous local experience is lacking and basic agricultural assumptions are by no means self-evident, such an analysis produces the best available interdisciplinary knowledge to the problem solution. In areas where irrigation systems already exist, this analysis can assess the feasibility of changing methods and practices.

iii. Relevancy of Research:

The irrigation engineer has rarely been assured that his recommendations for implementing irrigation will make the best use of all inputs. To do so would have meant that extensive research must have preceeded each decision. However, there is no reason why such assurances cannot be approached if the engineer is provided with an analytical test incorporating the vast experience of irrigation technology and capable of systematically pointing out the advantages and disadvantages of alternative decisions. Knowledge concerning irrigation is expanding rapidly and it is necessary to integrate such research results into an application mode.

The efficacy of irrigation system design and operation depends upon assumptions regarding the area to be irrigated,choice of crops and their moisture requirements, and the most suitable methods of water application (Finkel, 1961). In an era when the relative importance of such factors are changing in time and with location, it is difficult at best to properly evaluate each assumption in its proper context. In reviewing research literature and interviewing noted people in many fields of expertise, it is evident that little effort has been undertaken to integrate available knowledge into a single procedure for evaluating alternative irrigation systems. It would therefore seem that a logical next step in the evolution of irrigation technology would be to begin organizing the computational tools into such a single program. An analytical system of this nature should encompass the flexibility to evaluate strengths and weaknesses of existing systems, to upgrade their performance and in all cases, assess the long-term environmental impacts. This proposed cooperative study between agricultural engineering faculties of the Technion - Israel Institute of Technology and Colorada State University is designed to initiate the formulation of such an irrigation "model".

The results expected from this proposed study will be readily applicable to some highly important problems throughout the world. In the United states, irrigators are evaluating the feasibility of changing their irrigation system from a flood or furrow type to sprinkler or trickle system. Questions of cost, water savings, and increased yielding are being asked. The analysis proposed herein could be helpful in this situation by giving the farmer an assessment of his alternative decisions. Israel faces similar questions to make maximum use of limited water and land resources. Many of the underdeveloped countries in Asia or South America require such an analysis to decide upon the kinds of systems they should implement in order to increase yields. As demands for food increase and societies become increasingly urbanized, agriculture must begin using poorer quality water. Sewage effluents for example are being planned as irrigation supplies and the problems of groundwater or surface water contamination become critical. Also use of saline water is a necessary condition. In these circumstances, the results of this study would provide results for evaluating irrigation systems for these conditions. Irrigation is planned for new needs such as revegetation of lands disturbed by mining activities. An analysis assessing alternative irrigation systems would be useful since certain conditions are extremely sensitive to the decisions decided upon.

iv. Background Information:

It should be obvious from the long history of irrigation research that much is known about the technology - even though new concepts are continually being developed. In classifying this information according to how it might be used in selecting an irrigation system for a new installation or changing systems in existing areas, the writers delineated seven factors:

(1) annual costs (excluding labor and energy);

(2) labor requirements;

(3) water (availability, quality, etc.);

(4) field and soil characteristics;

(5) energy consumption;

(6) cropping patterns, and

(7) cultural practices.

These factors can be associated with the various methods of flood, sprinkler, and trickle irrigation under the various irrigation regimes they may be operated.

The reader may readily note that analytically describing the seven factors above and their interaction comprises the goals outlined in the first and second objectives of the preceeding section. In this segment, a brief discussion of these factors, what is known about them, and what is currently being investigated in their regard, if any, will be presented.

Annual costs. The costs of irrigation systems exclusive of labor and energy depend upon the irrigation intensity, magnitude of consumptive use, equipment and replacement parts, and the choice of system layouts.

Work by Karmeli et al (1967) evaluated total annual sprinkler irrigation system costs as a function of different designs and irrigation regimes. An interesting result of this work shown in Fig. 1 reveals that costs increase linearly with consumptive use but vary according to system structure and operating policies. This work was later extended for both portable and solid set sprinklers (Karmeli, Levi, and Peri, 1968). This work involved primarily orchard irrigation but added an analysis which determined the least cost system layout and then reduced the dimensionality of the original problem. An example of these results is shown in Table 1. These two studies lead a generalized economic model for evaluating irrigation system costs (Haitovsky and Karmeli, 1971). This work stressed the macro-economic details of the Israeli citrus industry and has served as an important procedural analysis. The results established criteria for determining equilibrium economic conditions and the true value of labor in the industry. An example of these results is shown in Table 2 describing the value of irrigated citrus orchards in Israel.

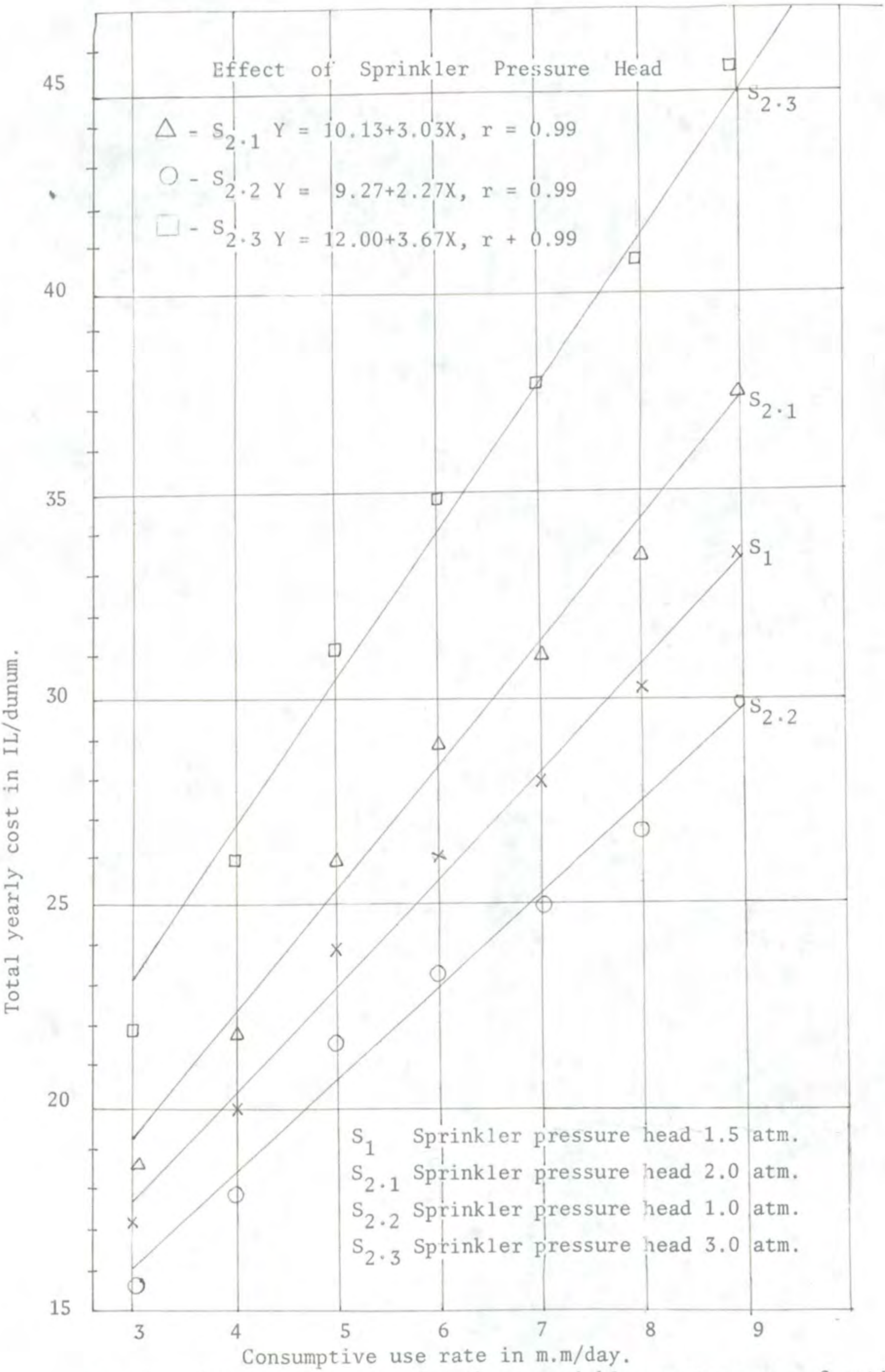


Fig. 1. Total annual cost for three sprinkler systems as a function of consumptive use rates.

Discrete Variables			Continuous Variables			Total Costs	Equipment Costs				Energy Costs		
DPR	DSEC	DAUX	DA	LA	NAUX		CAD	CSECD	CAUXD	CPRD	CEND ΔAUX	CEND ΔHSEC	CEND ΔHPR
mm	mm	mm	mm	m	#	IL/D	IL/D	IL/D	IL/D	IL/D	IL/D	IL/D	IL/D
150	57	19	12.6	45	5	59	6.1	3.5	4.2	14.4	0.10	0.75	4.5
		33	12.0	46	6	60	5.5	3.7	5.5	14.5	0.01	0.82	4.5
	68	19	13.8	52	6	60	7.2	4.2	3.5	14.3	0.20	0.54	4.5
		33	12.6	45	7	61	6.1	4.8	4.9	14.4	0.02	0.54	4.5
	81	19	14.0	53	7	61	7.5	5.8	3.3	14.2	0.30	0.27	4.5
		33	14.0	53	9	62	7.5	5.7	4.0	14.2	0.05	0.46	4.5
250	57	19	12.8	46	5	64	6.3	3.4	4.1	23.0	0.10	0.70	0.4
		33	12.1	42	6	65	5.6	3.7	5.5	24.0	0.01	0.80	0.4
	68	19	13.8	52	6	65	7.2	4.2	3.4	23.5	0.20	0.55	0.4
		33	12.8	46	7	66	6.3	4.8	4.8	24.0	0.02	0.56	0.4
	81	19	14.0	53	7	66.8	7.5	5.8	3.2	23.0	0.30	0.28	0.4
		33	14.0	53	9	67.3	7.5	5.7	4.0	23.0	0.05	0.46	0.4
350	57	19	13.0	47	6	73	6.5	3.3	4.0	32.8	0.10	0.80	0.1
		33	12.2	42	6	74	5.7	3.6	5.4	32.9	0.01	2.30	0.1
	68	19	12.4	43	6	74	5.9	5.1	4.1	32.9	0.10	0.37	0.1
		33	12.0	30	7	78	3.6	7.2	7.4	32.7	0.01	0.24	0.1
	81	19	14.0	53	7	76	7.5	5.8	3.2	32.0	0.30	0.20	0.1
		33	14.0	53	9	76	7.5	5.7	4.0	32.0	0.05	0.40	0.1

Table 1. Annual costs of permanent under tree sprinkler irrigation systems for minimum cost designs.

Table 2. Value of irrigated citrus in Israel.

Year	Cost index for consumer (cost of living index)	Wages (a wor- ker is permanent in agric. after 150 days)	Real wage $100x\frac{(2)}{(1)}$ (w)	Product value: citrus fruit at 1949 prices in 1000IL.	Worked area for citrus fruit in 1000 dunams	Value of irrigated dunam at 1949 prices $\frac{(4)}{(5)}$	Value of product: overhead costs (7)	Value of irrigated dunam including overhead costs (5)/(7) $(\frac{K}{L})$
1951	35.3	2.50	7.08	8,011	139	58.90	16,040	115.4
53	71.1	5.03	7.07	12,820	164	78.11	67,319	410.5
54	79.9	5.55	6.95	11,451	195	58.74	62,599	321.0
55	84.6	5.78	6.83	12.770	213	59.80	75,394	354.0
56	90.0	6.86	7.62	13.032	246	52.24	87,654	356.3
57	95.8	7.10	7.41	13,452	275	48.91	100,046	363.8
58	99.1	7.34	7.41	16,532	300	55.10	106,166	353.9
59	100.6	7.34	7.30	17,467	328	53.25	110,690	337.5
60	102.9	7.57	7.36	14,772	340	43.45	111,552	328.1
61	109.8	8.78	8.00	15,362	390	39.39	144,595	370.8
62	120.2	9.38	7.80	21,343	420	50.82	234,014	557.2
63	128.1	9.86	7.70	20,657	440	46.74	185,414	421.4
64	134.7	10.84	8.04	25,546	452	56.52	227,925	504.2
65	145.1	12.09	8.33	26,798	455	58.90	253,681	557.5
66	156.7**	14.04***						
67 (I-IV	160.0**	14.87***						

** Source: Price cataloque, Central Bureau of Statistics - Israel.

***Calculated according to the wage rise index appearing in the pamphlet on costs - Central Bureau of Statistics.

A substantial contribution and improvement of this work is forthcoming from the Ph.D. Dissertation of Gideon Oron, under the direction of the Principal Investigator. This new work links the integer characteristics of solid set (sprinkler and trickle system) layouts with the non-linear functions describing equipment costs to arrive at the minimum cost system as illustrated in Table 3.

Table 3. Ratios of main system components in two sprinkler irrigation systems.

	Sprinkler system	
Component	solid set, %	movable set, %
Sprinklers	25.2	3.2
Pipe	67.6	34.2
Energy	5.6	8.5
Labor	1.6	54.1
TOTAL	100.0	100.0

Little investigation beyond that cited here has been undertaken in this important subject as it pertains to other irrigation systems. If the work concluding can be exapnded to analyze other irrigation systems as well, then it is possible to relate annual cost to irrigation efficiency, equipment and consumptive use for the range of irrigation systems. This goal seems achievable to the investigators and will comprise the first part of the study.

Labor requirements. Labor input is a critical requirement in irrigation systems and is a factor which differs a great deal between various areas. In general, the more developed countries have established that labor is an inefficient input to the production scheme and have gradually replaced it with highly skilled managers and degrees of automation.

There have been few attempts to relate labor inputs to irrigation systems in a systematic way, and no significant investigation is presently underway to do so. Thus, the results of this study will add a new dimension to evaluation of irrigation systems.

Labor can generally be related directly to the efficiency of an irrigation system as the irrigator attempts to more carefully manage his water. For example, a study by Stogerboe, et al (1974) in Colorado indicated that irrigation efficiency for local furrow irrigation systems could be increased by about 30% annually by doubling the labor input.

Water. Irrigation is by definition the supplementing of natural precipitation to meet crop moisture needs and maximize yields. Almost every water flow in the realm of irrigation has been and is currently being studied in great detail. A review of such work cannot realistically be made in this limited space, but because new knowledge is still needed to fully define irrigation hydrology, a few of the principal research topics should be noted. The time varying characteristics of the water supply is a topic being studied for its effects on design and management decisions. These investigations center on optimizing water use under delivery constraints. The quality impacts throughout the entire hydrology are also being examined due to the serious water quality degradation occuring as the result of irrigation return flows. Moreover, the application, distribution, and uptake of water in soils under different irrigation systems is evaluated repeatedly and specialized aspects continue. In short, much is understood, but the complexity of the system requires continual research to analyze new problems.

In this study of applying irrigation systems to their best use, one area of needed research has become apparent. If an irrigation system is applied to a set of conditions as being discussed herein, what will be the resultant efficiency? Efficiency as used here refers to the fraction of water supplied which is consumptively used, and numerous defintions exist to clarify at which point the supply is examined (Jensen, Swarner, and Phelan, 1967). If irrigation efficiency varies significantly from 100% as nearly every irrigation does, the quantity of water carried by the distribution network must be correspondingly higher. Thus, capital, energy, and labor requirements also are increased. The exact nature of efficiency relations with other mentioned factors remains to be solved as the second part of this study. At least three attempts at producing the needed relations have been reported by Willardson and

Bishop (1967), Bernstein and Francois (1973), and Willardson (1972). Numerous others have also touched upon the subject, but an integration is badly needed especially as efficiency is related to uniformity (Karmeli and Keller, 1974).

In each analysis of an irrigation system, consumptive use plays a significant role and much has been learned about this complicated process. A recent report by the American Society of Civil Engineers (ASCE, 1974) is a thorough state-of-the-art and handbook on this subject. Consequently, this study does not expect to further this science except where irrigation efficiencies decrease the water needed for irrigated fields.

Field and soil characteristics. When water is delivered to a field, the efficiency of its use will depend substantially upon the field and its soils. The soil volume encompassing the crop root zone acts as a transient reservoir to moisture added through precipitation, irrigation, or capillary rise. The system is transient because there exists a continuous flux of moisture. The studies of this complicated system have been many. For instance, Braester (1973), Brandt, et al (1971), Philip (1969) have mathematically simulated the infiltration of water through the soil surface from line, point, and flood sources. Once in the root zone, authors such as Raats (1974) and Gardner (1967) described and tested porous media flow and chemistry relations. Flows passing downward from the root zone or up into it have been described by writers such as Oster and Rhoades (1974) and Gardner (1958). These and many other reports and papers consider moisture, salt, and nutrient flows in the root zone as they are influenced by soil characteristics, irrigation applications, and cropping patterns. Research is currently under way at the U.S. Salinity Laboratory, Bureau of Reclamation and various American Universities to develop methods to better manage this system. Similar studies are underway throughout Israel and elsewhere.

The irrigation inputs to the soil regime are important considerations in describing the resulting flow patterns. Irrigation systems which add large quantities of water to the soil in short intervals such as flood and sprinkler irrigation tend to be less efficient than low intensity systems. The soils drain more rapidly near saturation and thus flows occur relatively soon below the root zone. As the degree of saturation decreases, such movements are much slower and less loss is incurred. In either situation, the characteristics of the field play an important role. Rolling and uneven surfaces result in poor uniformity under flood irrigation and high intensity sprinkler irrigation systems, whereas improper design for a field may result in poor uniformity with low intensity sprinkler and trickle systems.

Energy consumption. In today's world climate of political unrest over threatened energy boycotts, the use of energy must be considered as part of any development scheme. In Israel, a substantial fraction of all energy consumption is utilized in the delivery of water in the national carrier and in irrigation systems. The agricultural use of energy in the United States is not nearly so large a fraction but highly critical nevertheless. It is therefore necessary to examine an irrigation system from its energy consumption characteristic. Certain regions where irrigation might be applied or upgraded may have such few energy resources that modern highly automated systems are impractical.

As an example of the energy associated with irrigation systems, consider the following example. Suppose an irrigation system is being planned for 40,000 ha in an area where the net irrigation requirement is 1000 mm/yr. Three kinds of irrigation systems are being considered: (1) furrow; (2) sprinkler; and (3) trickle. The pressure requirements are given below:

	Furrow	Sprinkler	Trickle
Initial lift from diversion and conveyence losses	100 m	100 m	100 m
Operating pressure	0	60 m	15 m

If we assume the efficiency of the furrow, sprinkler, and trickle systems is 40%, 70% and 90% respectively, the net diversion requirements are

furrow - - 2,500 mm/yr
sprinkler - 1,430 mm/yr
trickle - 1,110 mm/yr.

Assuming also that these flows are delivered in 200 days at 20 hours per day, that electric power costs $ 15 per kilowatt-hr and that oil costs $ 10.80 per bbl, the annual energy costs of the three systems.

are given below:

	Furrow Energy Costs	Sprinkler Energy Costs	Trickle Energy Cost
Initial lift	10.5 bbl/ha	6 bbl/ha	4.7 bbl/ha
Operating Head	0	3.6 bbl/ha	7 bbl/ha
Total	10.5 bbl/ha	9.6 bbl/ha	5.4 bbl/ha

As the reader may readily note, the trickle irrigation system has a decided energy advantage in this situation. Thus, the compromise between capital costs and energy costs is demonstrated by the question, "Is the extra capital cost of the trickle system justified by the energy savings"?

Cropping patterns. The choice of cropping systems for an irrigation system is generally determined by the marketing network and farmer preference. However, certain classifications can be made in order to generalize the results of this study. These aspects will be discussed in a later section.

Each crop is most suitably grown in specific climatic and soil conditions and may also be more suitably irrigated by a single kind of irrigation system. The water requirements for individual crops vary widely (ASCE, 1974). As a result, the selection of an irrigation system includes analysis of crop characteristics.

Irrigation practices. Irrigation began centuries ago on lands where rainfall was insufficient to support crop production, but the failure to accurately predict the long-term impacts eventually spelled ruin (Moore, 1972). In each irrigated region, farmers have developed various practices of applying the water they feel will optimize their circumstances. Numerous examples exist where such practices were established in the beginning and remain today (Kang, 1972). Irrigation practices as denoted here refer to the many facets of irrigation decision making and attitude.

One of the age old questions farmers have faced is when to apply water to the soil and most effectively stimulate crop yields. Careful farmers have demonstrated their ability to time irrigations properly but seldom added only the necessary quantities. In the last few years the clear cut advantages of low tension, high frequency irrigations have left the farmer unaided by computerized scheduling at a distinct disadvantage. A numerical description of cultural practices in general is difficult to formulate accurately. However, in this proposed study it is only necessary to describe those practices which affect the water delivery network or the cost, since these factors influence the optimal selection or modification of systems. As an example of how these factors might be weighted, the following analysis is given in Table 4.

Table 4. Suitability of various irrigation system practices associated with low, medium, and high tension irrigation. (Pluses are relative, 0 is poorest, 4 is best).

	Furrow	Border	Sprinkler	Trickle
Low tension irrigation[1]	+	+	++	++++
Medium tension irrigation[2]	+++	+++	+++	++
High tension irrigation[3]	+++	+++	++++	+

1 Low tension implies irrigation every day or so.

2 Medium tension irrigations are every 2-20 days.

3 High tension irrigations are for long periods >20 days.

Irrigation practices differ among societies depending on political and social structures. Where irrigation is cooperative in nature the practices involved in irrigated lands tend to be less individualistic than when irrigators operate as independent units. A great deal of investigation is currently underway in both the U.S. and Israel to evaluate the social aspects of irrigation. These studies tend to be interdisciplinary and qualitative in nature, but add significantly to the understanding of how such variables influence the choice of irrigation systems themselves.

V. Research Procedure:

The procedure to successfully achieve the goals of this proposed project involve formulating the analytical devices and then verifying their scope and utility on selected case studies. It is therefore advantageous to divide this section into the following parts to give clarity to the discussion:

(1) simulation of irrigation efficiency;

(2) analysis of annual capital and energy cost for irrigation systems;

(3) selection of optimal irrigation systems, and

(4) verification.

Irrigation efficiency. The efficiency of an irrigation is the percentage of the added moisture that is utilized by the crops. As one can see, such a measure of the success of an irrigation is affected by many variables. This study will consider six of the most important: (1) field and soil characteristics; (2) cropping patterns; (3) type of irrigation systems; (4) irrigation practices; (5) irrigation water and its quality; and (6) climate.

The first step in computing irrigation efficiency in this study will be to integrate various methods of estimating consumptive use (or evapotranspiration) which take advantage of the climatic data available. These methods are commonly utilized throughout the world and include the Blaney-Criddle Method, the Pan Evaporation Method, the Jensen-Haise Method, and the Modified Penman Method (ASCE, 1974). In some regions only temperature and precipitation are recorded and the Blaney-Criddle Method will make the best use of these data. Occasionally, pan evaporation or solar radiation measurements are taken and the Pan Evaporation and Jensen-Haise Methods can be applied. Finally, in select areas data on the winds and relative humidities are available along with the others mentioned and the Modified Penman Method is applicable. In each situation, the more data that are available, the better the accuracy of the calculations. The methods noted are predictive of consumptive use on increasingly shorter time intervals suggesting that better data also allows closer coordination with other irrigation variables.

A process closely related to evapotranspiration is leaching. When crops absorb soil moisture and convey it to the leaves, the salts in the water are excluded, leaving the remaining soil solution more concentrated. In this study, the analytical methods in predicting salt movements in soils of the root zone will be utilized to estimate the minimum leaching requirements under various irrigation regimes. The results will make use of the most recent advances in unsaturated chemistry models in establishing leaching conditions under each method of irrigation being evaluated.

The results of consumptive use and leaching analyses will be coordinated with field and soil variables, and expected irrigation practices to evaluate schedules of irrigations for various crops. The irrigation practices referred to here relate to the management of individual irrigations and will involve the interrelationships between labor inputs and automation. For instance, the timing and depth of irrigation are generally decided upon by the irrigator who may elect to use his own judgement, rely on scheduling recommendations, or incorporate soil moisture detection systems. Since the depth of an irrigation application is dependent on the attention of the irrigator, labor is an important factor if automation is not employed. This interrelationship between labor and automation has not been adequately defined in previous studies. Irrigation practices will be described entirely in terms of labor inputs in this section of the analysis and automation will be added to an iterative optimization in the next part. Thus, a relation between labor availability and the timing-application aspects of irrigation scheduling will be defined. For example, for no automation and 1 hr per day of labor input, the irrigation set is likely to last 24 hrs, etc. For other levels of automation, the relationship will vary.

Once these parameters are evaluated, estimates of application uniformity and deep percolation will be made. Specifically, the time and intensity of water applications along with soil moisture capacity will dictate deep percolation. The variation of the relative magnitude of these variables over the field will define uniformity. Because the analysis will be concerned with assuring long term success of the system, the volumes of deep percolation and their occurance over the field will be checked against the leaching requirements. If the leaching requirements. For the given conditions will not be met, an alert will be made to the user to point out what the long-term effect will be.

The final results of this simulation will be the quantity and time distribution of net irrigation requirement. Water supplied by the irrigation system must include the consumptive use and deep percolation volume not satisfied by effective precipitation. Thus, the efficiency of the system must be defined in order to determine the minimum delivery capacity which assures that crop water demands and leaching are met. A diagramatic flow chart of the irrigation efficiency simulation is shown in Fig. 2.

Annual costs of capital and energy. If field dimensions, water supply conditions, and neccessary system capacities are known, an analysis of cost can be made. The geometrics available to be considered in calculating such costs are very numerous and cannot be included. In this proposed study, an optimization of costs will be made to each set of field dimensions and delivery capacities. This analysis selects the number of sets a field should be irrigated in and the sizes of each physical element. The basic operations of this part of the study are already formulated as a research effort just concluding under the direction of the principal investigator. After the system design is computed, the energy consumption can be calculated directly.

Generally the effects of replacing labor inputs with automation will improve efficiency and often lower some segments of cost. Thus, the above mentioned minimum cost design analysis will be repeated for various levels of automation. From these results a number of "optimal" systems can be singled out. For instance, the system and its associated degree of automation with minimum cost can be delineated as can the system with lowest energy consumption, etc. A schematic drawing of this procedure is illustrated in Fig. 3.

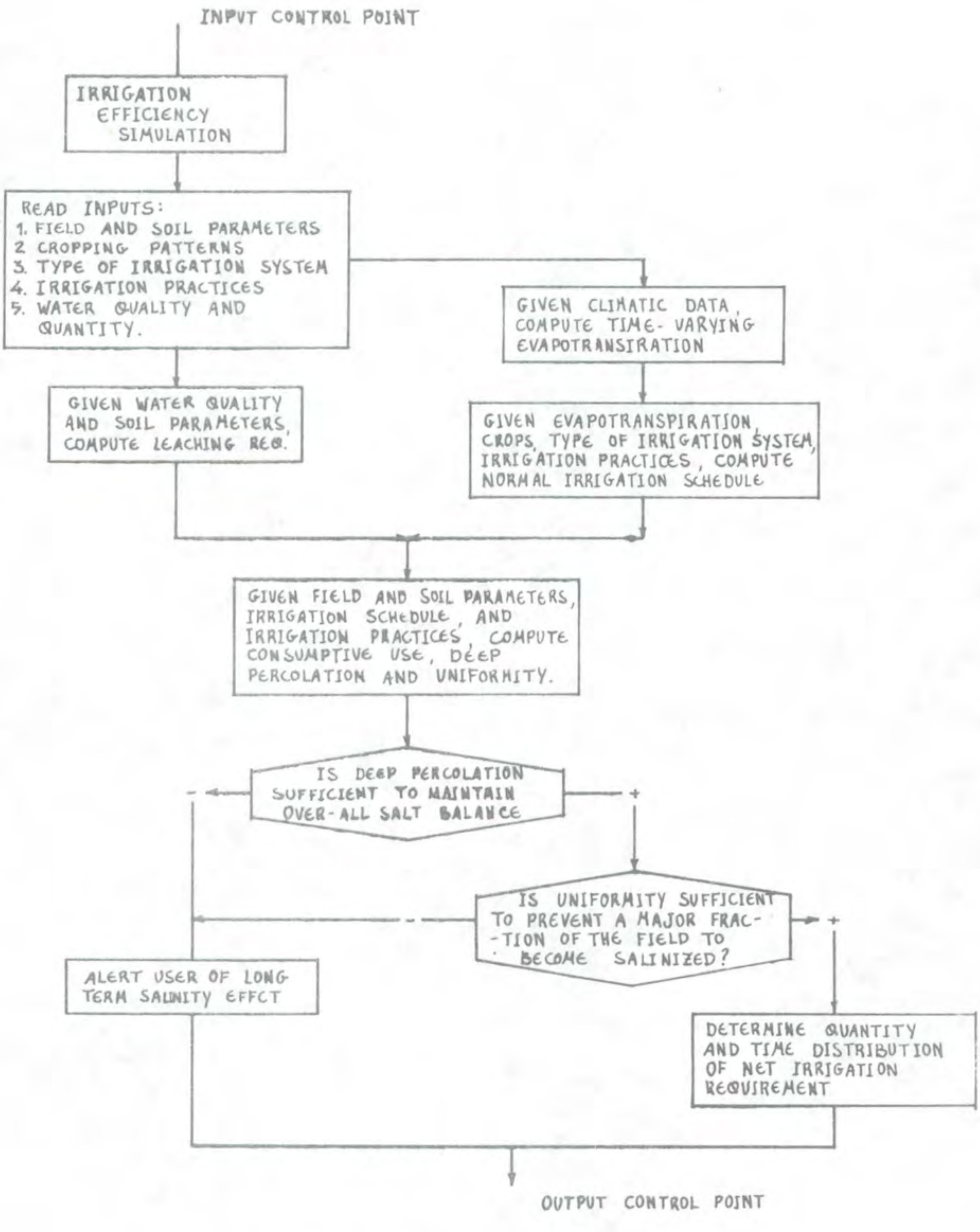


FIG 2 DIAGRAMATIC FLOWCHART OF A SYSTEM TO SIMULATE IRRIGATION EFFICIENCY.

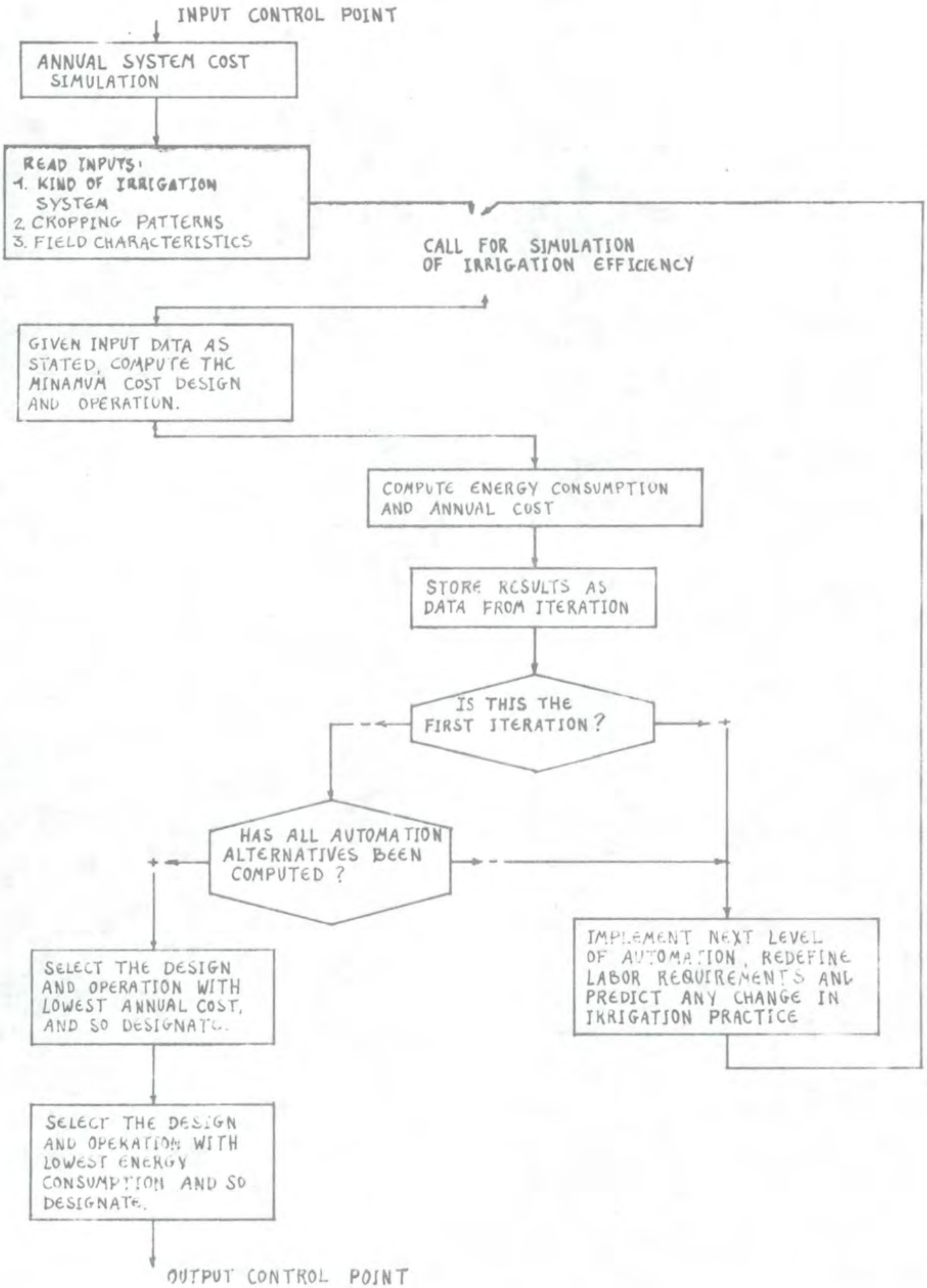


FIG 3. DIAGRAMATIC FLOWCHART OF A SYSTEM TO OPTIMIZE THE DESIGN AND OPERATION OF AN IRRIGATION SYSTEM FOR SPECIFIED CLIMATE, GEOGRAPHIC, AND CULTURAL CHARACTERISTICS.

Selection of best applicable irrigation system. It is clear by now that the solution of the problem outlined in the proposal is structured in three additive levels. Once the hydrologic characteristics are integrated with the hydraulic factors in calculating a minimum cost structure, the remaining task is to perform such an analysis for each alternative irrigation system and select the one which optimizes an objective function decided upon by the user. A format suggested for this research project is presented in Fig. 4. The program is designed to consider the conditions of climate, geography, etc. in the area to which an irrigation system may be added or modified. Five input resources to such a system are considered: (1) water; (2) energy; (3) capital; (4) labor; and (5) land. Irrigation systems applicable to the local conditions are limited to flood, furrow, portable sprinkler, fixed sprinkler, and trickle systems. Two optimizing criteria are included at this point, minimum cost and maximum resource efficiency. The reader should note that many other considerations can be included as they are deemed important by other interested parties.

The computational procedure is as follows: An irrigation system is selected and analyzed for efficiency of water use, energy consumption, or whatever is desired, and costs. Then a check is made to see if any resource consgraints have been violated, if not, the results are temporarily stored. If a constraint is not met, the program will determine if such a restriction can be met with the type of irrigation system under consideration. If not, the specific system is dropped from further consideration. If so, the most violated constraint is delineated and the input to the simulation systems is modified to conform to the variable values at the most violated constraint and another iteration is performed. Eventually each type of irrigation system has been systematically evaluated and the one which best achieves the requirements of the specified objective function becomes the system recommended.

It should be apparent to the reader that selecting an "optimal" system for a set of conditions rapidly degenerates to the problem of having many criteria upon which the alternatives are being judged if a systematic procedure is not employed. In this propsed procedure, many of

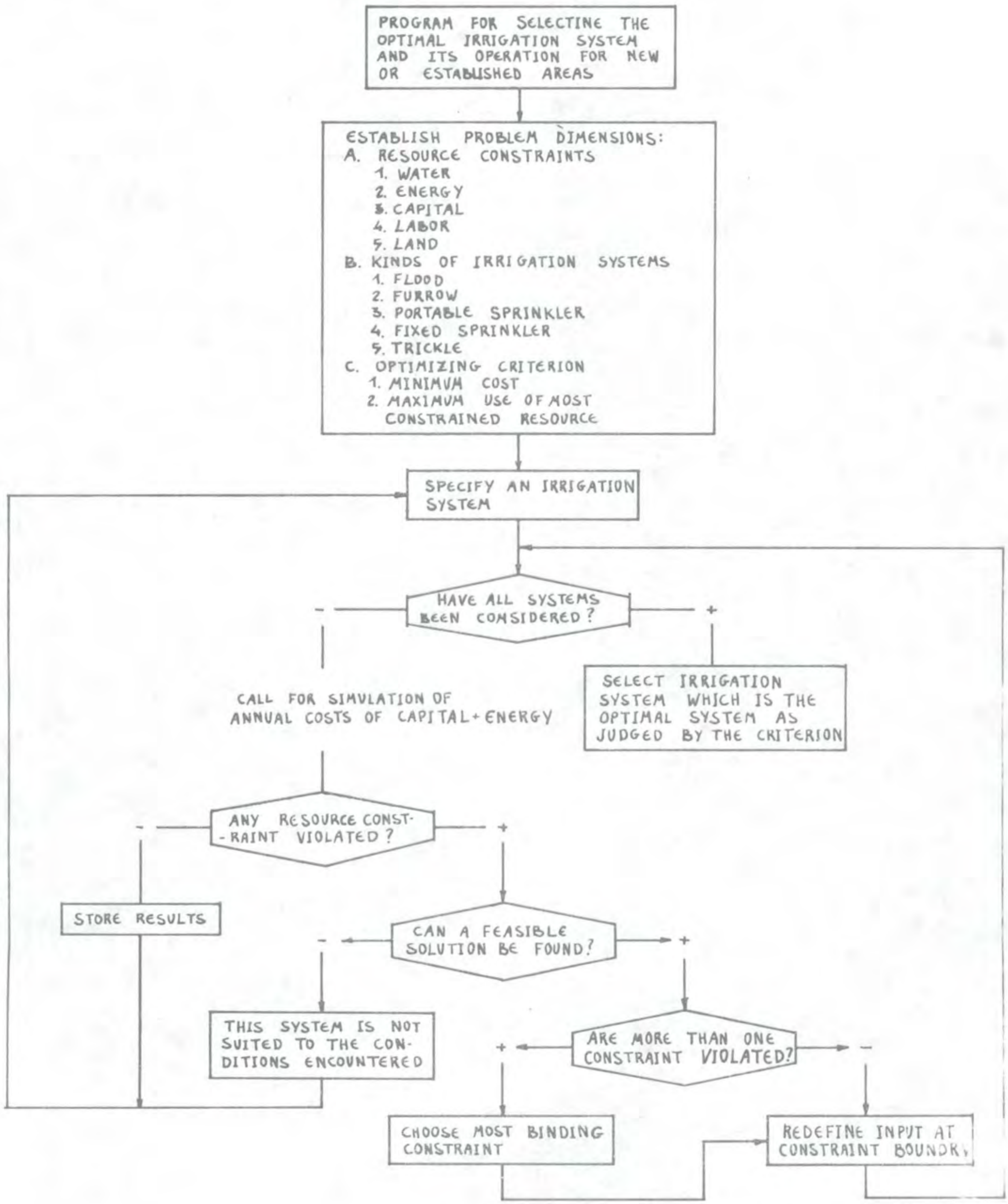


FIG 4. SCHEMATIC DIAGRAM OF PROPOSED ANALYSIS FOR SELECTING OR MODIFYING IRRIGATION SYSTEMS TO OPTIMALLY COORDINATE IRRIGATION IN AN AREA WITH RESPECT TO PHYSICAL AND RESOURCE CONSTRAINTS.

the important questions such as optimal levels of water use efficiency, labor inputs, and automation are internalized to reach their best levels. A further advantage of this method is that the relationship between elements tending to be abstract can be analytically defined by this additive analysis.

Verification tests. This study proposes that the investigators bring together and computerize much of the currently available irrigation technology for rapid examination of irrigation alternatives in different locations. The utility of this model should be clearly demonstrated. Therefore, at least three verification studies would be conducted to test the system operation under widely different conditions. Rather than find possible new sites for irrigation and running the analysis there, it is suggested that at least three existing systems be identified and evaluated. In this manner, the results of the investigation can be readily compared to the existing system and the differences examined in detail.

It is recommended that the overall research effort will include the initiation of a textbook - "Irrigation Engineering". The textbook will supply both a need existing today for such a technical book for students of all levels and engineers and also include the comprehensive analytical tools developed through this proposed research.

It should be noted that some parts of this book were already made available by the principal investigators in various forms and will be integrated accordingly.

vi Project Personel.

In addition to the three principal investigators whose qualifications are summerized in the attached vitae, the faculties of Agricultural Engineering at the Technion - Israel Institute of Technology and Colorado State University have vast experience in irrigation engineering which can be drawn upon. Certain agronomical or economic questions which may arise can also be consulted upon with experts in these fields as well.

REFERENCES:

American Society of Civil Engineers, 1974. Irrigation Water Requirements and Consumption Use of Water. New York, N.Y.

Bernstein, M.L. and L.E. Francois, 1973. Comparisons of Drip, Furrow, and Sprinkler Irrigation. Soil Science. Vol. 115, No. 1, pp. 73-86.

Bruester, C. 1973. Moisture Variation at the Soil Surface and the Advance of the wetting Front during Infiltration at a Contant Water Flux. Water Resources Research, Vol. 9. pp. 687-694.

Brandt, A., E. Bresler, N. Diner, I. Ben-Asher, J. Heller, and D. Goldberg. 1971. Infiltration from a Trickle Source: I Mathematical Models. Soil Science Society of American Proceedings. Vol. 35. pp. 675-682.

Finkel, H.J. 196-. Basic Assurptions and Economic Criteria for the Design of Irrigation Projects. Estrutto da "l'Irrigazione, n. 1-2, anno VIII. Centro Internazionale per gli studi, Sulla Irrigazione a Pioggia, Stradone Scipione Maffeir, 8, Cassella Postala III, Verona.

Gardner, W.R. 1958. Some Steady-State Solutions of the Unsatuatial Moisture - Flow Equation with Application to Evaporation from a Water-Table. Soil Science. Vol. 85. pp. 228-232.

Gardner, W.R. 1967. Water Uptake and Salt-Distribution Patterns in saline Soils. In Isotope and Radiation Techniques in Soil Physics and Irrigation Studies. IAEA Proceedings Series, pp. 335-341.

Haitovsky, Y. and D. Karmeli. 1971. A Macro-Economic Model for Irrigation Systems Costs. Publication No. 239 . Agricultural Engineering Faculty. Technion - Israel Institute of Technology. Haifa, Israel.

Jensen, M.E., L.R. Swarner, and J.T. Phelan. 1967. Chapter 66. Irrigation of Agricultural Lands. R.M. Hagen, H.R. Haise, and T.W. Edminster. Ed. American Society of Agronomy, Madison, Wisconsin. pp. 1120-1142.

Lang, S.T. 1972. Irrigation in Ancient Mesopotamia. Water Resources Bulletin. American Water Resources Association. Vol. 8, No. 3, pp. 619-624.

Karmeli, D., A. Anukularmphai, and G. Pitkovski. 1967. Total Annual Sprinkler Irrigation System Cost as a Function of Different System Designs and Irrigation Reqimes. Technion - Israel Institute of Technology, Publication No. 44. Haifa, Israel. December.

Karmeli, D. and J. Keller. 1974. Evaluation of a Trickle Irrigation System. 2nd International Drip Irrigation Congress Proceedings. San Diego, California, pp. 287-292. July.

Karmeli, D., R. Levi, and G. Peri. 1968. Optimal Evaluation of Sprinkler Irrigation Methods in Orchards. Publication No. 57. Agricultural Engineering Faculty. Technion - Israel Institute of Technology, Haifa, December.

Moore, C.V. 1972. On the Necessary and Sufficient Conditions for a Long-Term Irrigated Agriculture. Water Resources Bulletin, American Water Resources Association. Vol. 8, No. 4, pp. 802-812, August.

Oster, J.D. and J.D. Rhoudes, 1974. Calculated Drainage Water Composistions and Salt Burdens Resulting from Irrigation with Western U.S. River-Waters. Journal of Environmental Quality. (in Press).

Philip. J.R. 1969. Theory of Infiltration. Advances in Hydroscience. Vol. 5. pp. 215-296.

Roats, P.A.C.]974. Steady Flows of Water and Salt in Uniform Soil Profiles with Plant Roots. Soil Science Society of American Proceedings. (Sep-Oct. Issue).

Stogerboe, G.V., N.R. Walker, J.H. Taylor, and R.S. Bennett. 1974. Evaluation of Irrigation Scheduling for Salinity Control in Grand Valley. Report EPA-660/2-74-052. Environmental Protection Technology Series, Office of Research and Monitoring, U.S. Environmental Protection Agency, Washington, D.C. June.

Willardson, L.S. 1972. Attainable Irrigation Efficiencies. Journal of the Irrigation and Drainage Division, ASCE. Vol. 98, No. IRZ, pp. 239-246. June.

Willardson, L.S. and A.A. Bishop. 1967. Analysis of Surface Irrigation Application Efficiencies. Journal of the Irrigation and Drainage Division, ASCE. Vol. 93, No. IRZ, pp. 21-36. June.

CURRICULUM VITE

DAVID KARMELI

Date of Birth : October 12, 1927.

Place of Birth : Haifa, Israel.

Marital Status : Married, with 3 children.

Citizenship : Israeli.

Main Occupation: Associate Professor, Faculty of Agricultural Engineering, Technion, Haifa, ISRAEL. (B.Sc. - Iowa State University, U.S.A. M.Sc. - Arizona State University, U.S.A. Ph.D. - Hebrew University, Jerusalem, Israel).

Main Fields of Work : Research, teaching and consulting in Irrigation Practices. Soil Survey and Development Projects.

Languages : Hebrew and English - writing, reading and speaking. French - slight speaking, reading and writing.

Professional Positions :

1954 - 1958	Director of the Northern District Irrigation Extension Service, Ministry of Agriculture.
1958 - 1962	Head of Soil-Water National Extension Service, Ministry of Agriculture.
1961 - 1962	Head of central Soil-Water National Laboratories, Ministy of Agriculture.
1962 - 1964	Advisor to THAL (Israel National Water Planning Company) in Soil and Irrigation.
1964 - 1967	Head, Soil and Road Testing Laboratories, Technion.
1964 - 1969	Senior Lecturer, Agricultural Engineering Faculty, Technion - Israel Institute of Technology.
1970 -	Associate Professor, Agricultural Engineering Faculty, Technion - Israel Institute of Technology.

Research Experience :

1955 - 1964 Soil classification and evaluation studies.
Various aspects of sprinkler irrigation methods.
Satinity, soil drainable porosity and infiltration studies.

1964 - 1968 Quantitative evaluation of soil surveys.
Economical and engineering evaluation of sprinkler irrigation methods.

1969 - Planning of agro-industrial complexes.
Optimization technique for designe purposes.
Development of trickle irrigation systems.

Teaching Experiences :

1956 - 1964 Soil and Irrigation Sciences:-

Ruppin Agricultural Istitute.
Technion Research and Development Foundation.
TAHAL Engineering.

1964 - Faculty of Agricultural Engineering - Technion :-
Soil Survey and Classification - (Senior year).
Irrigation Engineering - (Senior year).
Advanced Soil Technology - (Graduate course).
Advisor and Major Instructor to Graduate Students - (Towards M.Sc and Ph.D).

Professional Experience in Israel (1954 - 1972) :

Designing irrigation systems.
Planning yearly water distribution systems in communal, private and regional farms.
Development of sprinkler irrigation systems (introducing the use of the plastic pipe, etc.).
Development and introducing a specific sprinkler for orchard irrigation.
Adapting and introducing the use of soil moisture testing for irrigation purposes.
Analysing evaluation of soil surveys and irrigation regimes through 10 to 12 field laboratories.

Professional Non-Academic Activities

Head, committee for soil evaluation for citrus planting purposes in Israel (Nomination - Director of Min. of Agriculture, 1958 - 63).

Head, committee for establishing of water norms for various crops in Israel (Nomination - by Min. of Agriculture, 1959 - 62).

Member of committee for national water utilization (Nomination - Min. of Agriculture, 1962).

Member and secretary of committee for establishing water quality criteria (Nomination by Min. of Agriculture, 1963).

Consultant to various engineering firms, irrigation industry firms and research institutes.

Current Research Projects :

Statistical evaluation of soil types for multi-purposes design.

Engineering and economical evaluation of irrigation methods.

Irrigation design parameters as a function of evapotranspiration.

Optimal pipe size selection.

Development of automatic interpretation technique of imageries.

Optimal Design of sprinkler and trickle systems.

Economical on engineering evaluation of various parameters in large scale development projects.

Professional Experiences Abroad (1962-1972)

Design of irrigation systems - Cyprus, 1962.
Irrigation and soil survey for a U.N. Feasibility Study, Panama, 1963.
Irrigation and soil survey design for the International Bank, Feasibility Study - Peru, 1964.
Irrigation systems, soil survey and salinity studies for the International Bank, Feasibility Study - Turkey, 1965.
Irrigation methods studies - Spain, 1968.
Irrigation design - U.S.A., 1969.
Irrigation design - Spain, 1970.
Lectures - Greece, 1972.
Irrigation & soil survey, Chad, 1972.

List of Publications

1. D. Karmeli, R. Levy : Irrigation design with plastic hosing. Publication of Ministry of Agriculture, 1961.

2. D. Karmeli, R. Levy : Undertree water distribution with sprinkler irrigation. Publication of Ministry of Agriculture, 1962.

3. D. Karmeli, R. Levy : Time studies of various sprinkler irrigation methods. Publication of Ministry of Agriculture, 1963.

4. Path, D. Karmeli, Zafrier : Influence of soil physical conditions on root development and on productivity of citrus trees. Soil Science, August, 1966.

5. D. Karmeli : Drainable porosity as criteria to soil evaluation for agricultural purposes. Proceedings of I.S.S.A., Madrid, September, 1966.

6. D. Karmeli, I. Ravina : Hamra soils - properties and origin of clay fraction. Accepted for publication in Soil Science, October, 1966.

7. D. Karmeli, D. Yaalon, I. Ravina : Dune sand and soil strata in sedimentary cycles of the Sharon Coastal Plain. Journal of Earth Science, Decmber 1966.

8. D. Karmeli, A. Shani, Y. Gadish : Optimization of water planning using a special purpose computer. Published in proceedings of IFAC. August, 1967.

9. D. Karmeli, Y. Gadish, S. Meyers : Design of optimal water distribution networks. I. A linear programming solution. American Society of Civil Engineers, December, 1967.

10. D. Karmeli and I. Ravina : Evaluation of heterogeneous soil patterns. Sent for publication in S.S.S.A. Proceedings, January, 1969.

11. D. Karmeli, J Kinsky : Statistical models in the study of soil properties. Publication of the Faculty of Agricultural Engineering, Technion, No. 29, November, 1967.

12. D. Karmeli, G. Pitkovsky : Grumusol classification and statistical evaluation for engineering design. Agric. Eng. Publication, Technion, No. 42, January, 1968.

13. D. Karmeli et. al. : Sprinkler irrigation design parameters as a function of irrigation regimes. Agric. Eng. Publication, Technion, No. 44, March 1968.

14. D. Karmeli & G. Oron : Soil moisture distribution under trickle irrigation. Agric. Eng. Publication, Technion, No. 77, May 1969.

15. D. Karmeli : An optimal design technique for sprinkler irrigation. Publication of Oak-Ridge National Laboratory -(DWG 69-11705); ORNL 4496, 1970.

16. D. Karmeli : Design parameters for a perforated irrigation lateral. Publication of Oak-Ridge National Laboratory - (DWG 69-11706); ORNL 4497, 1970.

17. D. Karmeli : Outline of a food factory in Southern Israel. (Linear Pogramming oriented); ORNL report, 1970.

18. D. Karmeli and S. Klausner : Modification of a statistical proprocessor for automatic interpretation of aerial photographs. Agic. Eng. Publication, Technion No. 124, April 1971.

19. D. Karmeli : Hydraulic aspects of the various drippers. Sent for publication to the 'Journal of the irrigation and drainage division'. Proceedings of the ASCE, 1971.

List of Professional Studies (1956 - 1971) :

1. Effect of different cultivation methods on soil infiltration rates and other physical properties (M.Sc thesis).
2. Methodology for heterogeneous soil sampling (Ph.D. thesis).
3. Allowable water salinity levels of irrigation in Israel. Min. of Agriculture Publication.
4. Criteria for sprinkler design of an heterogeneous farm. Min. of Agriculture Publication.
5. Classification and evaluation of tropical soils. A feasibility study Panama.
6. Classification and evaluation of arid soils. Feasibility study, Peru.
7. Classification and evaluation of saline delta soils. Adana, Turkey.
8. Overhead irrigation methods using a plastic hose.

9. Performance and scientific design of sprinklers used for irrigation. U.S.D.A. Annual Report for the period, November 1, 1966 - October. 31, 1967.

10. Performance and scientific design of sprinklers used for irrigation. U.S.D.A. Annual Report for the period November 1, 1967 - October 31, 1968

11. Surface irrigation design Agric. Eng. Publication, Technion, No. 41. January 1968.

RESEARCH-GEN

Research Committee Members — March 14, 1975

D. C. Rao, VPD

Meeting on March 19, 1975

This volume contains material for the meeting of the Research Committee on Wednesday, March 19, 1975 at 3:00 p.m. in Room E1201.

The agenda for the meeting is:

1. Overview on Income Distribution Research.
2. Cost overrun on RPO 280.
3. Draft Guidelines for Review Panels.
4. Any other business.

The papers for the meeting are in the following sections:

(i) Income Distribution Overview - a paper by Mr. Ahluwalia.
(ii) Budget Table - summary of resource position and a memorandum concerning the cost overrun on RPO 280.
(iii) Review Panel Guidelines - a draft.
(iv) Completion Report: RPO 233 - Railway Traffic Costing Study.

Messrs. Graham Pyatt and Montek Ahluwalia will join the Committee for Item (1).

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
B. B. King, Lerdau, Schulmann, Thalwitz,
van der Tak, Vergin, Waelbroeck, Yudelman,
Mrs. Hughes

DCRao:gm

Research - General

INCOME DISTRIBUTION RESEARCH:

AN OVERVIEW OF RESEARCH PROSPECTS*

Montek S. Ahluwalia

Contents | Page No.

*My perceptions as recorded in this paper have drawn heavily upon many discussions with Messrs. Chenery, Bell, Duloy, Jolly and Rao during the writing of Redistribution with Growth.

I. INTRODUCTION

In recent years problems of income distribution have come to occupy the centre stage of development economics. Policy objectives are no longer defined solely in terms of accelerating the rate of growth but also of ensuring that growth is sufficiently broad based to reach the poorer groups in society. These considerations have naturally focussed attention on our long neglect and scant knowledge of this area. The extreme expression of this point of view would have us believe that we lack both an adequate theory of the determinants of income distribution and reliable data on the state of income distribution in most underdeveloped countries. On this view, we are in an area of "basic ignorance" in which major intellectual breakthroughs are needed before we can begin to handle the problem. Those who reject this uncompromising agnosticism offer at best a half-baked alternative. While accepting that we lack an adequate theory of distribution in the sense of a precisely formulated and widely accepted system capable of answering most of our questions, they argue that we are not wholly in the dark. On this view we have a fairly substantial understanding of the basic ingredients of such a theory, although we may not know enough about each of these ingredients and indeed may know very little about how to put them together!

The purpose of this paper is to document the extent of our ignorance in this area and to provide an overview of the research directions that should be followed to close this gap. In presenting this overview, I have attempted to identify research directions that are particularly important from the point of view of policy making. Where relevant I have referred to research projects currently underway which are pursuing these directions.

II. THE NEED FOR A THEORY AND SOME RESEARCH IMPLICATIONS

The first step in developing an overview is to consider how far we are from having an adequate theory of the determinants of income distribution. This is best done by outlining the kind of distribution theory we need, and then considering whether anything currently available meets these requirements.

The detailed shopping list of "features" for a theory of income distribution will obviously vary with the nature of the particular problem and this will differ from country to country. In general, however, a satisfactory theory must meet the following requirements.

(i) The theory must explain the distribution of income between the various income groups in which we are interested. These groups will not necessarily correspond to the familiar theoretical distinction between capital and labour. In most underdeveloped countries they include groups such as small farmers and other "self-employed" categories.

(ii) It must integrate this explanation with the process of growth in the economy. This integration of distribution and growth is crucial for both analytical and policy purposes. It is important analytically because the distribution of income and the rate of growth are both the end products of a set of complex interactions in the economy which must be modelled as a simultaneous determination problem.[1/] It is important for policy purposes since distributional objectives are best defined not statically in terms of distribution shares, but dynamically in terms of the growth of income of different groups.

(iii) Finally, if the theory is to be relevant for policy making, it must isolate and quantify the impact of "instrument variables" on "target variables" such as the incomes of different groups. The scope for policy is then determined by our ability to manipulate policy instruments to achieve desired outcomes in terms of "target variables". A distribution theory which does not point to any such policy instruments is of little interest to policy makers concerned with changing the distribution of income. In other words, we need

In other words, we need a theory of growth for a "segmented economy" consisting of several income groups; a theory which explains the level of income in each group and the growth of these incomes over time.

The formal structure of such a theory can be described as follows. It would consist of m income equations, expressing income of each of m "segments" of the economy in terms of endogenous variables $(x_1 \ldots x_n)$ and

---

1/ This is implicitly recognised even in the popular literature in which much is made of the fact that income distribution affects growth and growth affects income distribution. Attempts to treat these relationships as isolated relationships are doomed to failure.

exogenous variables $(z_1 \ldots z_p)$. It would also contain n equations for the determination of the n endogenous variables. The potential complexity of such a theory can be easily seen by writing these equations in completely general (and therefore somewhat trivial) form.

$$
\begin{aligned}
y_1 &= f_1(y_1 \ldots y_m,\ x_1 \ldots x_n,\ z_1 \ldots z_p) \\
&\ \ \vdots \\
y_m &= f_m(y_1 \ldots y_m,\ x_1 \ldots x_n,\ z_1 \ldots z_p). \\[1em]
x_1 &= g_1(y_1 \ldots y_m,\ x_1 \ldots x_n,\ z_1 \ldots z_p) \\
&\ \ \vdots \\
x_n &= g_n(y_1 \ldots y_m,\ x_1 \ldots x_n,\ z_1 \ldots z_p).
\end{aligned}
$$

A system of equations of this type meets the requirements for a theory listed above. For given values of the exogenous variables $z_1 \ldots z_p$ we can solve these equations to obtain $y_1 \ldots y_m$, i.e. income levels of the m income segments. The time path of $z_1 \ldots z_p$ then gives us the dynamic solution of the model in terms of the growth of income of each group (thus solving simultaneously for the rate of growth of the economy and changes in distribution). Finally, the scope for policy intervention is given by the extent to which we can set one or more of the variables $z_1 \ldots z_p$ to behave as desired.

The complexity of such a system is illustrated by two features of this system of equations. Firstly the income of one segment y_i may be linked to the income of another segment y_j either directly or indirectly through the effect of y_j on an endogenous variable x_s which directly affects y_i. An example of direct linkages is provided by the phenomenon of income transfers from migrant workers in urban areas to families in rural areas. Similarly, incirect linkages are exemplified by the effect of income in one group through its consumption pattern on the demand for particular factors and thence to the income of other groups. Secondly, policy instruments may affect more than one income group and sometimes in opposite directions. The net effect of a particular policy instrument on the income of a particular group therefore depends not only on its first round impact but also on its second round impact via income linkages from other groups. Optimal design of policy must obviously take account of these various linkages -- no easy task when we consider that some of these instruments (e.g. education) only become effective over medium to long run time horizons.

Judged by these standards we are far from having a satisfactory theory which integrates growth and income distribution in a unified explanation of the development process. At best we are beginning to piece together some of the components of the total picture, but our knowledge of each of these components and most of all our ability to put them together with any confidence is still fairly limited. The task of research is to expand this piecemeal appreciation of the problem into a systematic whole and the alternative directions of research discussed in this paper should be viewed in this context.

In order to better organise the discussion of these alternatives I have found it useful to distinguish between the following categories.

(i) Developing a factual base for the study of income distribution is universally regarded as a high priority area. Knowledge about patterns of inequality in LDCs, changes over time and differences across countries is a necessary first step in defining the dimensions of the problem.

(ii) Measurement of inequality and social welfare. This is an important area of research for the formal incorporation of distributional considerations into economic planning and performance evaluation.

(iii) Formal modelling of growth and distribution processes in an economy wide context. The central feature of this approach is the precise mathematical specification of a set of equations corresponding to Equation 1 above.

(iv) Modelling a part of the economy which is particularly important from the point of view of income distribution by treating it as "linked system" or "submodel". Here the techniques used are as formal as in (iii) above but the exercise focusses on a part of the economy.

(v) Studying isolated relationships in an economy which are of particular interest from the point of view of income distribution. Such relationships may be technological such as for example the degree of substitutability between capital and labour (or between high skilled and low skilled labour) or they may be behavioural such as the degree of substitutability between commodities in consumption or the variation in savings behaviour across socio-economic groups, etc.

Items (ii) - (v) above are all characterised by the use of formal quantitative techniques. Such techniques have a strong intellectual appeal because they permit "logical consistency" within the postulated framework of inter-relationships. This appeal is greatly strengthened when research is addressed to a technocratic policy making audience where results are easiest sold when they quantify the impact of this or that policy intervention. But to limit ourselves to this rarefied world would be wholly unwarranted. A balanced research program should therefore include research activity following much less formal methodologies in pursuit of the same broad objectives. The following are particularly important in this context.

(vi) Studying the historical experience of growth and distribution in particular countries, in order to isolate causal relationships and policy lessons. Such studies differ from (iii) above in that they do not use formal models, but they are nevertheless based on some implicit "theory" which underlies the identification of causes.

(vii) Studying the impact of particular policy instruments in one or more countries by a combination of partial equilibrium techniques, heuristic reasoning and ad hoc hypothesis testing. In this category I include studies of agricultural price policy, modern sector wage policy, trade policy, public expenditures, etc., and at a more micro level studies of particular schemes for rural development, land reform, land settlement, co-operatives, urban housing, etc.

The classification scheme presented above illustrates an important aspect of research in income distribution, viz. that a balanced research program would consist of disparate components, each tackling the problem from a different perspective at different levels and using very different methodologies. Direct comparisons of research projects across such differences are obviously extremely difficult, if not actually impossible.[1/] It is easier to determine the relative priority to be given to a broad direction of work, and then to evaluate and compare projects within these broad classifications. In the sections that follow, I have attempted to deal with each of the seven components outlined above. Not surprisingly, I have dealt with some more extensively than others.

1/ Such comparisons are particularly difficult for someone currently involved in research in this area and therefore suffering from all the professional and methodological prejudices one would expect to find in a protagonist.

III. DEVELOPMENT OF A FACTUAL BASE

It is widely recognised that the lack of "good data" on income distribution imposes severe limitations on further research in this area, and as a result there is considerable agreement on the priority to be accorded to remedying the situation. But what exactly does it mean to say we need more data? It is useful to distinguish in this context between two types of data requirements. Firstly there is the need for information on the degree of inequality as measured by one or the other index (the Gini coefficient, income shares of ordered percentiles, etc.) and secondly there is the need to study the "anatomy" of income distribution, i.e. to relate the observed patterns of income distribution to the various socio-economic factors which we analyse in studying the economy. The present state, and future prospects, of research in both fields is summarised below.

(a) The Degree of Inequality

Information on the overall degree of inequality is in some sense "basic information". It is important, if for no other reason, because it serves to describe an important dimension of development, and can be used to compare the distributional situation across countries or for the same country over time.

There has been a substantial increase in the availability of data on the size distribution of personal income and various summary measures of inequality derived therefrom. This expansion of the data set is due to both the results of new surveys being published and old surveys being dug out in response to the greatly expanded demand. The quality of the available data varies enormously from country to country and even for the same country over time. In general, data on income distribution is very inaccurate -- much more so than national accounts. As a result, comparisons between any two observations is subject to quite substantial error.1/ These data are however useful for cross country analysis through which we can search for broad empirical regularities between income distribution and various aspects of economic development and economic structure. To date the major contributions in this field are Adelman and Morris (1974), and Chenery and Syrquin (1975). Further cross-country analysis is currently being conducted on a recent, and much expanded, compilation of data prepared in the course of the ongoing work on income distribution in the Development Research Center.2/

My summary assessment of research in this field is that sufficient effort has already been devoted to compiling available data, and further mining will simply produce low grade ore. Much more important is to look towards the future expansion of the data base as the more recent (and generally much better) survey results are processed and made available. The systematic compilation and presentation of such data with adequate documentation about the nature of the surveys on which they are based would permit further testing of hypotheses, through cross

---

1/ This is particularly important in making intertemporal comparisons for particular countries where the differences in distribution indices are usually very small and may not therefore be statistically "significant".

2/ The data are reported in Jain [1974]. The cross-section results are currently being written up and will be reported in a paper by M.S. Ahluwalia entitled "Income Distribution and Development: Some Stylised Facts".

section analysis and its long awaited extension (for some countries at least) into time series analysis. This extension into time series analysis is perhaps the more important of the two. Policy makers are most concerned about short and medium term possibilities, and these simply cannot be captured by the very broad sweep of cross section studies.

(b) The "Anatomy" of Income Distribution

Despite the potential for hypothesis testing as described above, it is increasingly being felt that mere measurement of inequality is ultimately of limited interest. What is much more important as a direction of research is to examine the socio-economic characteristics of different income groups in particular countries, in order to be able to move from statistical frequency distributions to economically definable "segments" which can then be incorporated into an analysis of a segmented economy.

This is best done when different income groups correspond to homogeneous socio-economic groups, which relate to the aggregate economy in a particular way. What are the kinds of groups that are relevant from this point of view? The usually quoted examples of low income "target groups" are small farmers, landless labourers, urban unemployed, urban low-wage informal sector employees, unskilled workers, low income self-employed, etc. While this list is easily enumerated on the basis of casual empiricism, we do need to develop a stronger factual basis for the enumeration, and we need to identify various characteristics of these groups. What are their income sources? To what extent do they rely on wage employment? What are their skill characteristics and education levels? This requires analysis and cross tabulation of existing income (or consumption)

Research of this type is useful because it identifies target groups not simply in terms of income, but in terms of groups which can then be studied more carefully and for which special policies can be devised. The identification of "relevant" groups in this sense has an immediate impact on the kind of models we use, the theories we embody in them, and the policy instruments we apply. If a large number of the poor are small farmers and landless labourers both our theories and models need to direct more attention to this sector. If many of them are self employed we need to focus not simply on the determination of wage employment and wage rates but on income and productivity constraints in this sector.

While emphasising the importance of such research, we should also recognize its limitations. Although it suggests policy directions it does not by itself give us a quantitative guide to policy. From the fact that a large number of the poor are self employed it does not follow that the optimum long term solution is to raise productivity in this sector. More likely, it is a mixed strategy in which development proceeds by absorbing more and more of the low income self employed in the modern sector, but in the interim (which may be quite long), something must be done to raise productivity in the traditional sectors. The problem of policy formulation is to make "realistic" assessments of what this length of time is likely to be in order to determine an appropriate mix of policies directed at the modern and traditional sectors. The difficult problem is not whether something must be done for the informal sector but how much should we do and in what way? The answers to these questions come from the more "analytic" research efforts to which we now turn.

IV. INEQUALITY MEASURES AND WELFARE INDICES

In my view this is for the most part a sterile field for future research because contributions recently made will stand for quite some time. A brief summary of the state of the art is given below and an attempt made to justify the dismissal.

Until very recently papers on income distribution were almost always papers on measures of inequality dealing either with the properties of these measures or the application of one or other measure to observed distributions. Into this placid atmosphere A.B. Atkinson [1970] injected the perceptive (if now somewhat obvious) observation that if we are ultimately interested in social welfare we should examine whether the various inequality measures give the same ranking of alternative distribution as a measure of social utility applied to the same distribution. The following propositions sum up the resulting debate to date.

(i) None of the traditional inequality measures gives the same ranking for two distributions (with the same mean income) as <u>any</u> (concave) social utility function. In other words, if all that we know is that the utility function is concave we cannot be sure that between two alternative distributions the one with lower "inequality" yields the higher social welfare.

(ii) If we know the parameters of the utility function, we can, of course, construct an appropriate inequality measure. Atkinson's measure, for example, reflects the loss of utility due to inequality. But, of course, if we know the utility function, we can choose between distributions by calculating social welfare without reference to an inequality measure.

(iii) It follows that normative judgments should be made not on the basis of inequality measures but on the basis of measures of social utility. The search for an appropriate social utility function is therefore an important line of research to emerge from this area.

Do we need social utility functions in practice? We may distinguish between three types of uses to which they may be put.

(i) Monitoring historical performance. Social utility functions can be used in conjunction with data on the level of income and the distribution of income to determine the growth of social utility -- a better index of performance than growth.[1]

(ii) Derivation of project analysis weights. Project analysis techniques which reflect distributional preference may require "weights" derived from the parameters of a social utility function. These weights reflect the social preference to be accorded to the same increment of income accruing to different income groups.

(iii) Specification of maximand in optimising models. If a model generating incomes of different groups $y_1 \ldots y_m$ were to be constructed and used as an optimising planning model we would need to define a welfare function $U = U(y_1 \ldots y_m)$.[2]

Of these three possible uses the most likely practical need is that of estimating distributional weights in project analysis. The social utility

---

1/ For an illustrative application of this approach to some countries, see Ahluwalia and Chenery [1974].

2/ The optimum solution of the model would then be given by the time paths of $Z_1 \ldots Z_p$, which maximises U over time.

function most frequently used in this context is of the individualistic additive separable type in which $U = y^{-\beta}$. Although a number of objections can be advanced to the use of this function it is also extremely convenient in many respects and certainly capable of reflecting quite different degrees of egalitarianism in social preferences.

V. ECONOMY WIDE MODELLING

The construction of economy wide models, which solve simultaneously for growth and income distribution, has obvious appeal as a direction of research. The structure of such a model gives us a precise statement of the "integrated theory" we need and it is only through intensive study of such structures that we can come to a thorough understanding of the complex forces involved. Nor is this simply a matter of intellectual aesthetics. Such models are also needed for policy purposes; in a highly simultaneous system, we cannot expect to trace the final impact of a change in one or more policy instruments without solving the system as a whole.

(a) The State of the Art

What sort of model would begin to meet these requirements? Clearly, the object of the exercise is not simply to produce a model, which determines the distribution of income in a purely mathematical sense but one which does so while reflecting the important underlying processes in a sufficiently realistic way. The identification of these processes gives us the ingredients of the theory we are working towards. Of these, the following are particularly important in producing a realistic policy oriented model of "distribution cum growth".

(i) Substitution in production and in final consumption (including foreign trade possibilities). The need for such substitutability has long been recognised in modelling the process of growth. It is particularly important for employment and income distribution since it permits flexibility in generating appropriate factor demands through the choice of technique for given products and through substitution in favour of labour intensive products.

(ii) Fragmentation of the market for capital which makes "access" to a key input both difficult and costly for certain groups. The resulting duality in the market typically discriminates against small farmers and small businessmen who -- even if not actually in the poverty group -- are probably more closely linked to these groups than larger producers.

(iii) Fragmentation of the market for labour whereby the labour market is effectively split into the rural and urban sector, with migration playing an "equilibrating" role between the two. More realistically, the urban labour market may also be fragmented into a high wage "protected" sector and a low wage, market clearing, informal sector.

(iv) Pre-existing patterns of asset concentration and the processes whereby these patterns are perpetuated over time, (e.g. through differential rates of saving).

(v) The role of human capital in offsetting the concentration of physical capital and providing an avenue by which large sections of the population might share in the benefits of growth. These relationships are particularly important since governments may be more willing to adopt highly reformist attitudes in the field of education policy than in areas such as concentration of wealth and landholdings.

(vi) The role of technical progress in shifting the balance in favour of some sectors (usually the "modern sectors") or some factors, with consequent effects on factor incomes and therefore on income distribution.

(vii) The determinants of investment behaviour in the system, which determines the allocation of investment between sectors and ultimately the pattern and potential for growth of the economy.

How far are we from having such a model? My own summary presentation of the state of the art would read as follows.

(i) We do not at present have any model framework that incorporates all the elements listed above even in a purely analytic formulation.

(ii) Significant progress has been made in incorporating substitution in consumption and production into what are essentially neoclassical growth models with several consumer classes.[1/] Solution algorithms now available make it possible to solve such models statically, i.e. to produce "market clearing" output prices and factor prices while linking factor incomes to size distributions of income which generate consumer demand. It should be noted however that this requires quite restrictive specifications of the production function (non-increasing returns to scale) and that no analytical proof is available of the uniqueness of such solutions.

(iii) The models in (ii) above have not however made much headway beyond the incorporation of a static price theory reflecting substitutability in demand and technology choice. Fragmentation of markets and inequality of access can be imposed on the models, by arbitrary distinctions between modern and traditional sectors which face differential factor prices, but these differentials are not themselves endogenised.[2/] The models are particularly primitive in their treatment of (a) technological innovation (b) investment and (c) patterns of asset concentration. Deficiencies (a) and (b) reflect gaps in the existing growth theory. Deficiency (c) represents the major gap in moving from the functional distribution of income generated by the price solution to the size distribution of income in which we are primarily interested. We can of course argue that.

(iv) The models that are currently in the pipeline present major estimation problems even with their limited ambitions in terms of specification and structure. Further experimentation will almost certainly run into insuperable estimation difficulties given the data availability at present.

1/ See for example Adelman and Robinson [1974] and Lopes and Taylor [1974].

2/ This would require specification of different market demands and supplies for different capital markets; in other words an extension into flow of funds analysis

The list of difficulties enumerated above may sound depressing but it is not presented to discourage further work along these lines. Quite the contrary it is presented so as to face up squarely to the problems while arguing strongly for further work in this area. Clearly the solution lies not so much in attempting to construct highly complex models,which attempt to endogenise everything,but in constructing models which deal with a part of the problem at a relatively sophisticated level in an economy wide setting while leaving the treatment of other parts at a fairly primitive level as dictated either by difficulties of specification or of estimation.

(b) Alternative Model Types

The following are some examples of the types of economy wide models which are currently in use in the repertoire of research on income distribution. These models represent quite different levels of sophistication so that it is worth considering what their relative merits might be.

Leontief Models without Prices

Input-output models are important if only because planning agencies are familiar with such models and improvements in this field will therefore have maximum impact. From a purely research point of view, such models are too primitive to be of much interest. Nevertheless, they can be easily expanded to permit income distribution and employment simulations by adding on employment coefficients or distribution schemes (somewhat mechanistically) for each sector. Solving for final demand then gives sectoral outputs, employment and distribution of income. The link between consumption and distribution can be closed to give consistent income-consumption solutions.

Substitution and Endogenous Price Determination

Endogenous price determination is necessary if we are to study questions such as the importance of relative factor price distortions and various taxes and subsidies in determining employment and income distribution, the importance of terms of trade changes in affecting the urban-rural income distribution. It is also necessary if we are to examine the role of foreign trade possibilities in generating the kind of commodity demands needed to promote demand for labour in the labour markets.

The Adelman/Robinson [1974] model (which is the outcome of RPO 206) referred to above is an important example of endogenous price determination in which income distribution implications of static price and quantity interventions have been explored [dynamic simulations are currently in progress]. The model's preliminary conclusions are that such static intervention (aimed at changing the functional distribution of income while leaving asset concentration patterns unchanged) has a very limited impact on the overall patterns of inequality. They do, however, affect the composition of poverty, i.e. whether the poor are urban or rural.1/ We clearly need more experiments with different countries before we can be confident of this result, but its implications are very important. To quote Adelman [1975],

> "...while one can make small gains in the welfare of the poor through large changes within the system the goal of equity cannot be achieved without radical reform".

1/ This insensitivity of overall inequality parallels the general conclusion of many Leontief type studies that overall employment patterns are insensitive to demand composition changes. All these conclusions of course are model and data specific.

Non Neo-Classical Models

While the endogenisation of prices is a major step towards incorporating the wisdom of neo-classical thinking into economy wide models, it is also important to experiment with models that depart from neo-classicism in a fundamental way. But are there such models? For all the criticisms of neo-classical theory that have been launched by the Cambridge School the fact remains that no viable alternative system has yet been produced. The most that we have seen are attempts to graft "structural" elements on to neo-classical systems by introducing specific rigidities and dualisms.1/ More recently, an attempt has been made by Bacha and Taylor [1974] (also an outgrowth of Bank-sponsored research) to develop a growth cum distribution model combining elements of neo-classicism with the more unorthodox neo-Keynesian distribution theory.

Further work along these lines is absolutely essential, if only because the set of policies that may emerge as relevant would be quite different. A real feel for the nature of the problem can only be obtained by continuously contrasting the alternative approaches available. Contrast, for example, the following quotation from Bacha and Taylor [1974] with the usual assumptions of the neo-classical school.

> "...the skilled labour supply curve (depending on the stock of human capital, or of people with middle class parents, or whatever) is irrelevant to output determination ... labour supply considerations can be inter-

---

1/ These models should really be classed as neo-classical in basic inspiration. They differ from the stylised perfectly competitive neo-classical paradigm insofar as they incorporate market fragmentation and non-competitive (but still maximising) behaviour. This is, however, best described as an adjustment of the basic model to reflect particular real world features rather than a rejection of the paradigm. Indeed, our ability to do this is a tribute to the impressive flexibility of neo-classical tools.

ticities of substitution" are not nearly as plausible a basis for conceding the potential for employment creating policies as concrete results in terms of defined technologies, crop mixes and scale choices. Experiments with such models would provide an invaluable basis for comparison with the sectoral results achieved through the highly aggregated sector treatments that are achievable at the economy wide level. This is particularly important if we are to decide whether the frequently reported insensitivity of aggregate models is due to the level of aggregation or more fundamental "balancing forces" which prevent an economy being moved to an alternative time path.

VII. STUDYING ISOLATED RELATIONSHIPS

This is by definition an "open ended" category but it is not meant to be a ragbag in which we can include almost anything that could conceivably be relevant in constructing an economy wide model. Research in this area should be seen as a detailed pursuit of individual relationships that are particularly important for income distribution. Typically, this view of the importance of a relationship is derived from some broad theoretical formulation which postulates a skeletal or stylised form of a particular relationship leaving the rigorous investigation to further research. Examples of such "isolated relationships" are the following.

(a) Substitution in Demand

Further work on demand systems is extremely important from the point of view of income distribution (and also employment). We need to

---

1/ For a static linear programming model with these capabilities see Duloy and Norton (1973).

examine substitutability between commodities which are very different in terms of their employment and income generating characteristics. The theory of consumer demand is fairly well developed and some very important applications have already been completed in LDCs.[1/]

The available results confirm the existence of substitution as evidenced by high and significant price elasticities and cross price elasticities. The Lluch-Powell-Williams findings point to the particular importance of the price of food both in terms of own price elasticity of Food demand and cross price elasticities of the demand for other commodities with respect to the price of food. These results can have important implications for income distribution especially in the context of urban rural terms of trade changes.

Unfortunately, the existing studies for LDCs are all at very high levels of aggregation. [In general much greater disaggregation has been used in the simpler demand functions which don't estimate price elasticities.] The Lluch-Powell-Williams studies for example distinguish between broad categories such as Food, Tobacco and Beverages, Clothing, Housing, Health and Education, Transportation, Recreation and Durables. Quite obviously we cannot really expect to capture the full scope of demand substitution affecting employment by operating with such broad categories. We need to distinguish between different types of clothing and different types of housing. In effect we should consider the scope for substitution between different commodities which in some sense satisfy the same want <u>but which have very different pro-</u>

1/ IBRD research is well represented in this by the various studies of Lluch, Powell and Williams (see papers listed in bibliography).

duction characteristics[1/]. As far as I know such demand functions have not been estimated for underdeveloped countries although both theory and data to do this are now available. Further work along these lines should be strongly encouraged.

(b) Substitution Between Factors

Although an extensive literature exists on the production function and measures of substitutability, there is a growing feeling that there is little point in pushing for detailed econometric studies of this type. The scope for substitution in technology is best studied by detailed activity analysis. Substantial work along these lines is currently under way outside the Bank. [The Strathclyde group] and a major study has just been completed on Korea [Westphal and Rhee] as part of the Bank's research program. We should review these studies before launching further research in this area.

(c) Savings Rates by Income and Socio-Economic Groups

We need to know much more than we do about the rates of saving and patterns of asset accumulation of different income or socio-economic groups.

The importance of savings has been emphasised in quite different ways by different theories of distribution. The neo-classical approach takes savings to be a basis for asset accumulation. On this view differences in savings patterns projected dynamically lead to differences in patterns of asset concentration as for example in the theoretical model

---

1/ It is worth noting that the theory underlying the Linear Expenditure System implies that the commodities for which the system is estimated are characterised by "want independence", i.e. the utility derived from one is not affected by the level of consumption of any other. Substitution between such goods exists solely because of the budget constraint.

proposed by Stiglitz (1969) and the simulation model by Ahluwalia and Chenery (1974). The importance of saving on this account is further strengthened by the existence of fragmented imperfect capital markets. In such a world (a) the existence of own savings provides greater access to borrowed capital thus reinforcing the patterns described above and (b) the absence of access to finance may lead to a wiping out of accumulated savings every time disaster strikes. The likelihood of small farmers falling into debt and ultimately losing their land is a well documented example of just such a phenomenon. It is of course true that the wiping out of fortunes also occurs at higher income levels but it should be noted that this has the effect of transferring wealth within the upper income groups instead of transferring wealth from small farmers to large money lending landlords.

In contrast to the savings-asset accumulation-capital market nexus described above, we have other theories of distribution which have placed savings propensities at the core of functional distribution. The neo-Keynesian theory associated with Kaldor and Passinetti for example recently resuscitated by Bacha and Taylor regards savings propensities as determining the amount of income that needs to be directed at a particular group in order to establish the savings-investment equality. If this theory has any relevance to reality [and this is questioned by many critics] savings propensities are again important

(d) Migration

The migration phenomenon is widely regarded as crucial for modelling employment and income distribution in the medium or long run context. Migration is the process which determines the relative location of the poorer populations[1] and as such is a crucial structural change phenomenon. Studies of the determinants of migration are needed if only to develop reasonable projections of the speed of such projected changes.

(e) Human Capital Formation: Role of Skilled Labour

In recent years increasing attention has been paid to the role of skills and other human resources in economic development. In principle this could be studied in two different ways. Firstly, we could attempt to quantify the importance of skilled labour in the context of the production process by detailed studies either of the production function variety or activity analysis. Secondly, we can simply look at the income streams of workers at different education levels with different degrees of experience.

As a rule work in this area has been of the latter sort. It has amply established the fact that workers with a higher level of schooling tend to have higher incomes, and that income rises with experience to a peak and then drops, as predicted by the human capital model. My own reaction to this line of enquiry is that although these estimated relationships are consistent with the human capital hypothesis they are too obviously also consistent with other hypotheses which focus on social structure as a determinant of incomes. This suggests three directions of research. Firstly, the education-age-income relationship should be examined together with these other possible hypotheses in order to distinguish between these competing hypotheses. Secondly, the relationship should be examined across countries to determine whether country characteristics

---

1/ It is best to think of migration as a relocation of the pressure of population rather than the poor as there is some evidence that migrants don't come from the poorer sections of rural communities nor do they end up in poorer sections of urban communities.

make a difference. Finally, and in some respects most important, the role of labour skills in generating higher output and determining higher wages should be examined in the context of production relationships. Precisely how this can be done is still an open issue.

VIII. HISTORICAL EXPERIENCE OF SOME COUNTRIES

Thus far, we have been discussing research which is distinguished by its use of a relatively formal methodology, i.e. specifying and estimating a mathematical model or a single equation. Parallel with such studies there are others which are much less "rigorous" but may well be equally productive. An obvious example is a study of the historical experience of distributional change in a particular country. Protagonists of this line of research argue that such a "heuristic" study of the nature and causes of distributional change with development can have very high pay off.

Detailed discussion and evaluation of this approach is made somewhat difficult by the absence of any finished studies of this type although some are currently in the pipeline.[1/] The following general comments can however be made and could serve as a basis for evaluating research projects of this type.

(i) The lack of precise methodology makes it impossible to determine in advance the standards of rigour that will be adopted in the analytical parts of the study. Indeed the whole merit of this approach lies in its open-endedness and the resulting scope for imaginative heuristics.

1/ These include studies of Taiwan, Philippines and Colombia financed by the IBRD Research Program and being conducted by the Yale Growth Center.

(ii) At a minimum such a study should obviously document the "facts". For this it should be able to draw on data for several points in time on the overall degree of inequality and be able to relate these inequality patterns to economic phenomena about which generalisations are possible. For example, if inequality is related to the distribution between profits and wages and the inequality of each component then changes in inequality can be traced to changes in either of these components. Similarly if inequality is related to particular socio-economic groups observed changes in inequality can be "explained" by explaining changes in the relative income position of these groups. The groups identified in Section III above, viz. small farmers, landless labourers, unskilled workers, etc. would be very suitable for this purpose.

(iii) Underlying the explanation of changes in particular components (whether wage income or income accruing to small farmers) is obviously an implicit or explicit theory of some kind. Attempts should be made to make this underlying theory as explicit as possible.

While accepting the potential productivity of this type of approach, I should also record that I am somewhat skeptical of this approach, especially for international research support of the type we are discussing at this conference. This is essentially because of item (i) above which in my view makes it difficult to subject research proposals of this type to methodological scrutiny or indeed to establish reasonable criteria which the results should live up to. This skepticism may be easier to understand if we consider what our position would be on financing a "heuristic" study of growth ! Nor is this skepticism derived from any exclusive emphasis on formal methodologies as witnessed by my strong support for narrower policy oriented studies in Section IX below.

IX. STUDIES OF PARTICULAR POLICY INSTRUMENTS

Under this category I include research projects which make a detailed study of the impact of particular policy instruments in specific country situations. In my view studies of this type should have a very high priority if research is to be of value for policy making. It is also an area particularly well suited for international agency funding since the usefulness of studies in one country is greatly enhanced by comparison with similar studies in other countries. Furthermore, these are studies which are best done with direct involvement of institutions and agencies in LDCs and also these are studies which such institutions are most capable of doing especially if pilot studies can be developed to determine research design.

What distinguishes such studies from the study of policy interactions in a formal model framework is the richness of detail and the explicit recognition of the specific historical, social and institutional contexts. Thus it is one thing to "plug in" greater level of fertiliser availability at a subsidised price in a programming model and watch the model pick the new "optimum" and quite another to document what actually happens in different rural societies when attempts are made to implement such a program. Similarly, we can "simulate" technical progress and its dissipation by "shifting the whole production function upwards at some predetermined rate" but it is quite a different matter to document some actual cases in which the diffusion of a technology is studied in a particular context specific constraints on the diffusion identified and comparisons made with the diffusion process in other similar cases. Studies of this type obviously complement studies of policy interactions in formal models. Formal models examine the impact of policies in a relatively stylised fashion emphasising the quantification of direct and indirect effects. Detailed studies give us an assessment of working level problems (which policy makers must examine) associated with the implementation of such policies. Some examples (by no means comprehensive) are given below.

(a) Rural Development

We need careful monitoring cum ex post analysis of the various types of "rural development integrated packages" and special schemes that are currently being promoted around the world. As far as I know, everyone agrees with this proposition in principle, and the only question is how best to implement the proposal. A major problem is that the research perspective involved must be fairly long term. We must first design suitable monitoring systems and then ensure that as the projects are implemented these monitoring systems are also made to work. There is therefore a substantial lag before the data collected pile up to provide sufficient raw material for analysis.

(b) Technology Diffusion

We need to do a good deal more than is currently being done on the dynamic process of technology diffusion as opposed to the static perception of available alternatives. Even the systematic documentation of major successes and failures in the diffusion and adaptation of technology in various fields would be of great help. Obvious cases for study are improved seed diffusion, development of small irrigation technology, low cost housing, flexibility in design standards for roads and other construction, etc., low cost energy sources (bio-gas, windmills, solar energy, etc.). What are the factors that characterise successful diffusion and adaptation processes? What role have governments played in the success stories?

(c) Public Expenditures and Taxation

What is the scope for re-designing public expenditure and tax policy to shift the incidence of taxes away from and the incidence of benefits towards the lower income groups? Examination of this question in a particular country as a package would help in quantifying the scope for flexibility in this field while keeping in mind overall budget constraints. Included in the preview of such studies should be the quantitative significance (and distributional impact of underpricing of public services (which accrue mainly to middle and upper income groups)).

(d) Subsidised Provision of Food and Other Wage Goods

This is a familiar instrument of distributional policy in many countries and one that has very strong "political appeal". Attempts to subsidise wage goods are made in several different countries in quite different ways. What is the comparative experience in terms of operating one or other method? Are there countries that have been particularly successful in using this policy instrument?

(e) Credit Policy and Small Business

A good deal of the literature on employment and income distribution deals with the high costs of capital facing smaller firms (presumed to be better for income distribution objectives). Systematic studies of the degree of cost differentials facing different firms either by scale or by a "formal-informal sector" division could be very useful. Such studies could include an assessment of the effectiveness of various types of "specialised institutions" that are usually set up to direct credit to these groups.

(f) Land Reform and Tenancy

The implementation of land reform has long been emphasised as an essential requirement for broad based agricultural development and equitable growth in agricultural economies. Equally, it is true that the implementation (or non-implementation as the case may be) of different types of land reform have been fairly extensively studied. In view of this, it seems reasonable to accord it low priority in future research directions.

By contrast, problems of tenancy and sharecropping have been inadequately studied both at the theoretical and empirical level. Given the widespread nature of such arrangements, and the inevitability of having to live with them in planning rural development, more research should clearly be directed to these problems in the future.

The policy instruments discussed above are obviously only some of the instruments that can be studied in isolation but they suffice to give a flavour of what is involved in this category of research which is all I have undertaken to do.

~~VIII~~. SOME TENTATIVE CONCLUSIONS

Perhaps the most important conclusion to be derived from the above discussion is that as an area of research "income distribution" provides about as narrow a focus as "growth." Indeed we have argued that what is needed is theory of growth for an economy segmented into appropriate income groups. Because it is an all-encompassing subject, the research directions that emerge are necessarily far-flung. Choosing the more productive lines from this extensive menu is a difficult task and any attempt along these lines must necessarily be tentative. The following suggestions for developing a balanced research program in this area should be seen in this context.

(i) There is little point in attempting to add to our considerable collection of available published data. The data already collected provides a valuable basis for cross section analysis of aggregative patterns of inequality and has been extensively used for this purpose both within the Bank and outside. The data and our own cross section analysis will be published shortly.

(ii) A more fruitful line of research on the data side is the analysis of survey data to study the anatomy of income distribution, i.e. to identify the socio-economic characteristics of the poorer groups as a first step in studying how to improve their income levels. The ESCAP and ECLA projects are a useful start in this direction but we should recognise that being limited to existing surveys, the statistical picture they provide may be somewhat crude. Pre-existing surveys are unlikely to contain the full range of information on labour force characteristics, employment and occupation status, migrant status, sector of employment, etc. that are now de rigeur in anatomical studies.

(iii) For this reason it may be desirable to undertake in-depth country studies using national survey data for the "broad brush" income distribution picture but supplementing this with partial data (labour force surveys, agricultural and manufacturing censuses, etc.) to develop a more detailed picture of the socio-economic characteristics of low income groups. Such a phase is currently envisaged for the ECLA project. Equally important in this context is the development of a time series picture. of changes in income and relative position of particular groups. Overall changes in inequality may reflect a number of diverse changes in the relative position of different groups. Symmetrically an unchanging picture of overall inequality may hide substantial movement for particular groups. If we are to go beyond cross country analysis to consider whether development necessarily worsens relative inequality, it should perhaps be in terms of an analysis of what happens to each of these groups over time. Historical studies of this type could be extremely valuable in providing the raw material for theorising, model building, and model verification. This raises the question whether the work on income distribution, labour markets, and employment should be co-ordinated. At present there is no mechanism for ensuring that they complement each other. .

(iv) The complexity of the inter-relationships involved makes it essential for a research program on income distribution to encompass economy wide modelling. In this context it is important to judge such models by what they add in terms of the determinants of income distribution to an otherwise familiar structure. The Bank research program has an extensive selection of such projects ranging from the simpler input-output models [Malaysia Employment and Distribution Simulation] to the more sophisticated price endogenising variety such as the Korea model (Adelman and Robinson) and the Brazil model (Taylor and Lopes). Further work along these lines is planned as part of the Prototype Model project. The next year should provide the basis for a fairly extensive review of experience in this field.

(v) We need to undertake detailed studies of the effect of particular policy instruments on income distribution. This is an area in which we are simply not doing enough. The problem is not however organisational. We need to develop appropriate methodologies to study the impact of particular instruments outside an economy wide framework. Inadequate attention to this problem will simply lead to a flood of tedious and mediocre research pieces. Nor is it impossible to develop such partial equilibrium methodologies. The empirical literature on foreign trade distortions provides eloquent testimony to what can be done without economy wide modelling. Why can't we have something comparable in the labour market?

Finally a word of exculpation. I have deliberately avoided any reference to sociological or socio-political dimensions of a research program on income distribution.[1/] This is not to deny the importance of such research. It is primarily a reflection of my own ignorance in these areas and secondarily perhaps a reflection of my suspicion that at present multi-disciplinary research in these areas is less important than the independent pursuit of the same questions in different disciplines.

1/ This omission was the subject of substantial criticism at an earlier meeting at which a version of this paper was presented.

REFERENCES

Adelman, I. and Morris, C. "Economic Growth and Social Equity in Developing Countries" (Stanford).

Adelman, I. and Robinson, S., "A Non-Linear, Dynamic Micro-Economic Model of Korea", Woodrow Wilson School Discussion Paper No. 36, 1974.

Adelman, I., "Development Economics: A Reassessment of Goals" (mimeo), 1975.

Ahluwalia, M.S. and Chenery, H.B., "The Economic Framework" in Redistribution with Growth, Chenery, Ahluwalia, Bell, Duloy, and Jolly, 1974, Oxford University Press.

Ahluwalia, M.S. and Chenery, H.B., "A Model of Distribution and Growth", in Redistribution with Growth, 1974.

Atkinson, A.B., "On the Measurement of Economic Theory", Journal of Economic Theory, September 1974.

Bacha, E. and Taylor, L., "The Unequalizing Spiral: A First Growth Model for Belindia", IBRD (mimeo) 1973.

Chenery, H.B. and Syrquin, Patterns of Development (Oxford), 1975.

Duloy, J. and Norton, R., "CHAC: A Programming Model of Mexican Agriculture" in Multilevel Planning: Case Studies in Mexico, ed. L. M. Goreux and A. Monroe (North Holland), 1974.

Jain, S., "The Size Distribution of Income: A Compilation of Data", Bank Staff Working Paper No. 190, 1974.

Lluch, C., Powell, A., and Williams, R., "Research on Demand and Savings Patterns in the Development Process", IBRD (mimeo), 1974.

RESEARCH - GEN.

Mr. Hollis B. Chenery, VP - VPD

March 13, 1975

B. B. King, VPD Signed B. B. King

Annual Report on Research

The guidelines for clearance of "studies subject to discussion or review by the Executive Directors" say that - "Procedure in these cases is determined by the Vice President - External Affairs or the Director of Information and Public Affairs, in the light of decisions by the President."

So maybe a note to William Clark is in order.

BBKing:gm

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

Research

OFFICE MEMORANDUM

TO: Mr. C. Willoughby,
Operations Evaluation Department

DATE: March 10, 1975

FROM: B. B. King, Development Policy BBK

SUBJECT: Evaluation of Research

1. In his memorandum of February 14 to Mr. Chenery on the Board Discussion of the Annual Report on Bank Research on February 4, Mr. Damry summarized various statements by Mr. McNamara. These included the following:

> "....said that the appraisal of the results of research in terms of their effect on operations (raised by Mr. Faure) would be a major part of the 1976 Report;"

2. I would like to raise the question whether the process of evaluation should:

   i) be undertaken exclusively by the Operations Evaluation Department; or

   ii) be undertaken in some cooperative way by Operations Evaluation Department and ourselves; or

   iii) Not be undertaken by Operations Evaluation Department at all.

3. Could we discuss this at some early date?

cc: Messrs. Chenery
Rao, D.C.

FORM NO. 75
(2-73)

WORLD BANK GROUP

ROUTING SLIP	DATE

NAME	ROOM NO.
[illegible]	

	APPROPRIATE DISPOSITION		NOTE AND RETURN
	APPROVAL		NOTE AND SEND ON
	COMMENT		PER OUR CONVERSATION
	FOR ACTION		PER YOUR REQUEST
	INFORMATION		PREPARE REPLY
	INITIAL		RECOMMENDATION
	NOTE AND FILE		SIGNATURE

REMARKS

I would like to know whether (a) this is a starter from your Dept's point of view (b) whether, if so, there is any urgency in lashing all these cyclists together this year

FROM	ROOM NO.	EXTENSION
[illegible]		

FORM NO. 75
(7-73)

WORLD BANK GROUP

ROUTING SLIP	DATE 3/4/75

NAME	ROOM NO.
Mr. King	F-1233

	APPROPRIATE DISPOSITION		NOTE AND RETURN
	APPROVAL		NOTE AND SEND ON
✓	COMMENT		PER OUR CONVERSATION
	FOR ACTION		PER YOUR REQUEST
	INFORMATION		PREPARE REPLY
	INITIAL		RECOMMENDATION
	NOTE AND FILE		SIGNATURE

REMARKS

FROM	ROOM NO.	EXTENSION
H. Dunkerley	D621	4687

DRAFT
HBDunkerley:rm
March 4, 1975

To: Mr. Ben King, Projects, W. Africa

From: Harold B. Dunkerley, Transp. & Urban Projects

Subject: Research into Bikeways

1. Following our earlier discussions on possible research into bikeways and the strong interest in the potential for bikeways shown in the recent Board discussion of the urban transport sector paper, we intend shortly to ask the Research Committee to fund an initial research project in this field. This research would fundamentally analyze bicycle flows and speeds in relation to track width and other conditions (such as gradient, intersections, etc.) so as to provide a general basis for extension and adaptation of the results to the conditions of individual cities.

2. This memorandum is to request an "in principle" approval of the proposed research so as to provide the qualified assurance necessary to justify our going ahead-and asking the proposed consultants to go ahead - with the preparation of a detailed proposal. The reasons for this type of request are two. First, the preparation of the proposal will require substantial work by the consultants, and the consultants wish to be reasonably assured that if their proposal is satisfactorily prepared, funds will in fact be available so that their effort is not wasted. Second, the necessary controlled experiments on bicycle flows can best be carried out in the summer holiday period; a quick decision is required if we are not to lose a year.

3. As the urban transport sector paper indicates, bikeways are likely to occupy an important place not only in our urban transport projects as such but also in the policy reforms which will constitute

an essential element of our "package approach". In brief, a high proportion of the urban population of the less affluent developing countries simply cannot afford any form of motorized transport on a regular basis. While the low cost and large capacity (in persons carried) of bikeways is evident, very little has been done to determine the parameters of design in relation to flows. What little information there is on flows varies so widely as to raise serious doubts on the measurements. No controlled experiments have so far been undertaken. Costs, on the other hand, can be estimated relatively easily once design parameters are established.

4. The UK is the obvious choice for a first series of controlled experiments. The TRRL is the world leader in controlled experiments for other types of road traffic - few other countries have conducted any such research. The expertise and equipment available in London, including some unique equipment for translating standard movie film shots into speeds and capacities, is not to my knowledge available elsewhere.

5. We are fortunate to have interested Professor R.J. Smeed of London University in this potential research. Probably no other person has such an extensive experience in this type of work. Apart from a general survey of the available information in which both our own staff and his will participate, it is intended that he should conduct a series of experiments on a circuit allowing the testing of a large number of variations. Some 100-150 cylists would probably be involved for 1-3 days - hence the importance of timing to obtain the number of cyclists required via universities, cycle clubs, etc. to provide a satisfactory mix. The detailed analyses of the results would be compared with evidence -

particularly from films taken for other traffic purposes - from a variety of cities in both developing and developed countries and dealing with cycles both on bikeways and in mixed traffic.

6. Without considerably more preparatory work it is difficult to estimate overall costs - hence Smeed's reluctance to undertake a detailed proposal without some assurance as to funds being available if the proposal is satisfactory. The TRRL track is not suitable (too flat, etc.) and an adaptation of one of the military test tracks may be required. The extent to which cyclists will be readily available for the test is uncertain before discussions with potential sources. The precise design of the experiments and estimation of analysis requirements - and hence man-months of research time - will need considerable discussion.

7. On the basis of very rough estimates of Smeed's and his researcher's time plus overheads of London University, daily allowances for cyclists, etc. a figure of between $20,000 and $30,000 seems likely. This could, however, be somewhat higher if rent of track and modifications required have to be substantial. However, an absolute ceiling of $40,000 would, I believe, be warranted as a basis for carrying the proposal further. Of the total, roughly one-third would, I expect fall into FY75 and the rest into FY76.

8. Transport and Urban Projects Department regards this research as of high priority and directly related to its operational requirements. It is perhaps also relevant that at the recent Board discussion of the research program, emphasis was land on the need to increase the urban element in the total program.

Research

Mr. Vinod Dubey, Senior Economist, Country
Programs Department 1, EMENA Region
Ian Hume, Economist, Division 1D

March 3, 1975

Research Proposal on the
Study of Export Incentives

I enclose a number of comments which Hasan Imam made on the Michaely study proposal. My only observations are, first, that the study would clearly not be of relevance to Romania and, second, that I find the proposal rather vague. I think a much clearer statement is needed of precise hypotheses to be tested and also of the precise ways in which the study hopes to advance upon the work already done in this field.

Attachment

IHume: orp

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: I. Hume

DATE: February 28, 1975

FROM: K. H. Imam

SUBJECT: Comments: Export Incentives in Developing Countries - Project Outline by M. Michaely

The project as outlined could absorb at least two basic suggestions. First, it is not quite clear what the author means by export exchange rate (p. 3, para 1). If the reference is to exchange rate as determined by the "nominal" exchange rate regime then perhaps it could be suggested that a more meaningful way of looking at the problem would be to focus on "effective" exchange rates. This should necessarily involve looking into the whole regime of policy instruments which bear on the "effective" exchange rate, viz., taxes, subsidies, interest rates, etc. which through the general equilibrium linkages affect the effective exchange rates of "activities." For various reasons the LDC's are not often very keen on using the "nominal" exchange rate as a key policy instrument but are relatively positive on its variants which admit realistic constraints on the pursuit of any single or more policy instrument.

Secondly, there ought to be a recognition that a successful export effort could also depend on a public sector investment effort irrespective of a given or desired pattern of incentives. The associated costs to be financed by a tax-subsidy mix could be taken as a component of a deliberate redistributive - allocative policy justified on prior considerations such as the relaxation of the foreign payments constraint which it is understood is the thrust of the proposed study. Admittedly, an investment effort such as above might not conform to optimal considerations but it could nevertheless achieve the immediate objective, i.e., relaxation of the foreign payments constraint. It is thus important that the scope of the proposed study (p.3, para 3) is relaxed so as to permit a look into economies which have been in the past and are also presently going for a significant public sector development effort without the benefit of a proper pricing structure. The pay-off in terms of insight gained would not be entirely wasted.

Additionally, it is not quite clear whether there would be an attempt, perhaps in the synthesis volume, to define an optimal pattern of incentives. This ought to be an important component of the effort. Finally, it is also not quite clear whether there would be an attempt at estimating feasible limits to export expansion given a finite time-span.

HImam:cg

RESEARCH-GEN

Those listed below

February 25, 1975

B. B. King, VPD Signed B. B. King

Indian Grain Storage and Distribution Research Project

✓-NOT ATTACHED

The attached documents have been sent to us by the Ford Foundation in confidence. Two projects must be distinguished:

(a) The ongoing project by ASCI in the Indian context (as described in the document).

(b) The proposal for extension on a world scale, proposed by ASCI to the Ford Foundation.

The first (a) may be relevant to two recent projects: RPO 321 on foodgrain production and RPO 324 on buffer stocks. It would be of interest to know whether the project was known to exist. If not, how can we prevent this?

We have been asked by Ford whether we are interested in the proposal (b) and whether it could be "plugged into the Takayama study" (RPO 323). If so, Ford would encourage ASCI to submit a proposal. I would be grateful for your preliminary reactions.

Distribution

Messrs. Norton
Picciotto
Reutlinger
Waelbroeck
Yudelman

Attachments - Confidential

BBKing:gm

Record Removal Notice

The World Bank Group Archives & Records Management

File Title	Barcode No.
Research Projects - General 1975 / 1977 Correspondence - Volume 1	1064731

Document Date	Document Type
24 February, 1975	Board Record

Correspondents / Participants

Subject / Title
SD75-12
Summary of Discussion at Meeting of the Executive Directors of the Bank and IDA, February 4, 1975

Exception(s)

Additional Comments
Declassification review of this record may be initiated upon request.

The item(s) identified above has/have been removed in accordance with The World Bank Policy on Access to Information or other disclosure policies of the World Bank Group.

Withdrawn by	Date
Sherrine M. Thompson	December 28, 2017

Archives 01 (March 2017)

Exchange of pubs
with LDC orgs
cc Research Gen.

Mr. Odd Myhrer, European Office February 24, 1975

D. C. Rao, Development Policy

Research - Document Exchange Program

Mrs. Bomstein has passed on to me your memorandum of February 7. The omission of the OECD Development Center from the document exchange program is an enigma to me, especially since the list was put together following a conference sponsored jointly with the OECD in 1972. I will certainly repair this omission and also add the Chr. Michelsens Institute in Norway.

If you come across any other institutions engaged in development research, we would be grateful if you could write to the "Secretary to the Research Committee" in Washington. We are on the look out for LDC institutions which have an ongoing research program and with whom we can develop a fruitful exchange of research output. In this connection, I attach a copy of Mr. King's letter to the Bank's resident representatives in offices outside Washington.

Enclosure

cc: Mrs. Bomstein

DCRao:gm DR

Research

February 20, 1975

Mr. Ronald Ridker
Resources for the Future
1755 Massachusetts Avenue, N.W.
Washington, D. C. 20036

Dear Ron:

Following our various telephone calls, and before I put through a formal request to our Personnel Department to establish a contract between the Bank and the Resources for the Future, I think it will be helpful if I spell out what I think should be in such a contract and get your reaction. It should say something like this:

The World Bank is interested in collaborating with Resources for the Future in jointly financing the research project concerning the interrelationship between income distribution and fertility, which has been proposed by Robert Repetto and submitted to Resources for the Future. He is, at present, under contract to us for research on this topic, focusing on Mexico. Joint collaboration will allow further elaboration of this topic and will bring to the study resources which in form and amount we could not possibly provide under his present contract or any possible extension. The basic format of the research project will follow the Repetto proposal to Resources for the Future, entitled "The Effect of Income Distribution on Fertility: A Research Proposal." Resources for the Future will administer the contract with Repetto. The Bank's participation will consist of the following:

1. The work already done in the Bank by a research assistant, and at Harvard by Repetto, which has led to the tabulation of data taken from a sample of rural and urban municipios from Mexican Census sources for 1970 and the calculation of a number of indices. Some additional work is still needed to modify the sample. It has been agreed with Repetto that this will be done in the Bank as soon as possible.

Mr. Ronald Ridker

2. The Bank will supply to Repetto any other data that it can obtain, which might be suitable for analysis under this project, provided that the conditions attached to its use by those who supply the data to us do not preclude our making it available to consultants. In using this data, Repetto's status will be that of a direct consultant to us, in that he will have to agree not to make the data available to other researchers without our permission, and not to make additional copies of the data. The data we supply will have to be returned to us at the termination of the project.

3. We will provide $5,000 for the project during FY'76. We should prefer disbursement to take place on receipt of a statement from Resources for the Future; that this amount has been disbursed for the purposes of the project. We would hope that the work on Mexico would be completed first and that it could be written up in a form suitable for distribution as soon as possible. In general, we would hope that we would be able to issue any reports as World Bank Working Papers -- which would, of course, acknowledge the Resources for the Future input. These papers have only limited circulation and would not be a substitute for other publications, which would acknowledge the support of both the Bank and Resources for the Future. As is normal practice with consultants, we should be asked for prior consent to publish the results of the research. This is simply a formality since in general, the Bank is extremely eager to see the results of its research work given as wide a dissemination as possible. Finally, there will probably be a standard Bank clause in the contract that for a period of three years, after termination of the contract, Repetto should not seek nor accept work connected with the research he has been contracted to do without obtaining prior consent of the Bank.

With best regards,

Yours sincerely,

Timothy King
Chief, Population and Human Resources Div.
Development Economics Department

TK:jln

FORM NO. 75
(7-73)

WORLD BANK GROUP

ROUTING SLIP

DATE Apr 3

NAME	ROOM NO.
(1) ~~Mr. Alleau~~	E-508
Mr. Visaria	
(2) Records Station Classifier Mr. C. Ziegler	F-244

	APPROPRIATE DISPOSITION		NOTE AND RETURN
	APPROVAL		NOTE AND SEND ON
	COMMENT		PER OUR CONVERSATION
	FOR ACTION		PER YOUR REQUEST
	INFORMATION		PREPARE REPLY
	INITIAL		RECOMMENDATION
	NOTE AND FILE		SIGNATURE

REMARKS

Please indicate whether the attached paper refers to a study authorized by the Research Committee, and, if so, please indicate the RPO #. Thank you.

—

Mr. Visaria visited Sri Lanka on his way to Bangkok where he is now working as a Consultant for the Dev. Research Center (Income Distbn. Divn.) on an IBRD-ECAFE project. For further inf., please ask DRC.

Pop. & Human Res. Divn.
4/9/75

FROM	ROOM NO.	EXTENSION
Charles Ziegler	F-244	2453

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Files

DATE: February 19, 1975

FROM: A. M. Colliou

SUBJECT: SRI LANKA - Staff Travel

Yesterday I informed the Embassy of Sri Lanka, Mr. J. Dhanapala in the absence of Mr. Melder, that Mr. Pravin Visaria is now planning to visit Sri Lanka from March 15 to March 18 in connection with preparation of a multi-country research project about income distribution for the Development Research Center of IBRD.

I then called Mr. Blake to advise the Visa Section accordingly.

cc: Mr. Shibusawa
Mr. Blake
Mr. Visaria

Research

February 14, 1975

Prof. William Doebele and Prof. Lisa Peattie
508 Gund Hall
Harvard University
Cambridge, Mass. 02138

Study RPO # 73/008

Dear Bill and Lisa,

I enclose a clean copy of the draft documents we left in Salvador with a few comments added after your departure. I had a final meeting with Dr. Morcillo on Monday in which he suggested one or two minor changes which I have noted in the margin. These include the addition of some in-servicing training sessions in Salvador requiring a slight reduction in study-tours, and bringing forward some of the phase 1 activities to the preparatory stage if the project is accepted as one package rather than two. We are still discussing the question of phasing. You will note that we are recommending the Unit become a "division" rather than "department" since the former has the higher status. I think this is consistent with our original intention.

When we receive the final draft I would appreciate both of you taking a day or so to check it for consistency on key points with the field version and to bring to our attention any major deviations or other comments you may have.

Our administrative officer informs me that you may, if you wish, submit a partial request for payment now and the day or two noted above later, or submit it all at once, as you choose. Again, we very much appreciated the hard work you both put in preparing these documents in the field. Hope your stomach recovered from its brush with the Santa Ana cuisine, Bill !

Regards,

DH

Donna Haldane

cc: Mr. R. Sison

DHaldane:sh

TELECOM
MISC
✓ Research

Mr. Charles Weiss February 13, 1975

C. P. Vasudevan CPV

Status Report on Tehhnology and Science in
World Bank Activities - Your Memo of February 10, 1975

As discussed I am giving below a revised draft paragbaph on telecommunications research in India. The present text on item 8 page 13 is very bare and the proposed text at Annex 1 gives some relevant information.

I also feel that item 3 on page 24 should be redrafted for two reasons. Firstly, the Iran project is no different from most other Bank-financed telecommunications projects and most of them include microwave systems, some include ground stations for satellites and others provide for semi-electronic exchanges. Secondly, Iran is financing a large revised expansion program on their own and Bank's position in the latest project is being reviewed. I would therefore suggest that we substitute the text there with that in Annex 2.

CPVasudevan:cft

8. Telecommunications Research in India

53. As part of Bank Group's participation in India's telecommunication sector, IDA credits have contributed to financing of sophisticated measuring instruments needed for the functioning of the Telecommunications Research Center (TRC) in the Indian Posts and Telegraphs Department. The activities of TRC are closely geared to meeting India's specific telecommunications needs and to designing and supplying know-how for domestic manufacture of a wide range of equipment. TRC have also been successful in modifying equipments which are domestically manufactured with imported designs and know-how. TRC has had a major impact in making available to P&T a wide range of indigenously manufactured equipments valued at several million dollars annually, including many specially suited for Indian conditions. In turn this has helped the country to meet the demand for telecommunication services within the limited foreign exchange resources available for the sector and providing greater control by cutting down the lead time between ordering and delivery of equipment. Bank Group support to TRC has been a significant factor in developing its research capabilities.

3. Technological Support in Telecommunications Projects

115.)
116.) As in paragraphs 116 to 119 of current text at pages 24 and 25.
117.)
118.)

119. Bank Group effort has been to assist the borrowers on a continuous basis from project design to completion, in obtaining the full benefits from the new technologies in this sector. Bank participation includes assistance to borrowers in making the right choices, in writing proper specifications and in implementing the programs for maximizing benefits and minimizing costs.

RESEARCH-GEN.

Mr. Ian Scott February 12, 1975

Barend A. de Vries

MEXICO: Protection Study

1. In response to your memo of February 6, I would, in principal, agree with your suggestion of first evaluating the usefulness of the UNAM/Erasmus study. We should of course be particularly concerned whether the study, apart from its regional focus, would provide us with the answers to our questions to industrial policy and national resources allocation.

2. I suggest you touch base with Mr. Bela Balassa on the UNAM/Erasmus study since he has some previous acquaintance with it. I am sending him a copy of your memo.

cc: Mr. Balassa

BdeVries/crs

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

mpB
AK/RG/RK
DR

OFFICE MEMORANDUM

TO: Members of the Research Committee

DATE: February 11, 1975

FROM: Ravi Gulhati and Raj Krishna

Research - General

SUBJECT: Research in Development Economics Department

1. Up to now you have reviewed individual research proposals submitted by this Department and you will see more of these later this year. Meanwhile, the attached paper entitled "Medium-Term Research Program of Development Economics Department" may be of some interest to you.

2. This paper is the result of staff discussions within the Department and informal exchanges with our colleagues in the DPS as well as the operational part of the Bank. We would now like to have the benefit of your views and we will seek out the views of other interested persons.

Attachment

Distribution:

All Members of ECD
All DPS Department Directors, Division Chiefs & Advisors
All Regional Chief Economists & Senior Economists
All CPS Directors
All Regional Projects Directors
Messrs. Stern, Baum, Weiner, Bell, Alter, Husain, Chaufournier, Benjenk.

RG:ll

187

MEDIUM-TERM RESEARCH PROGRAM OF DEVELOPMENT ECONOMICS DEPARTMENT (ECD) FY 1975-77

1. We have reviewed our ongoing research and considered the direction of future work up to FY 1977. The following questions have been addressed:

- What has been accomplished so far since the beginning of the external research budget in 1972?
- What should be the priority themes for future work, considering the operational needs of our customers - the Bank's Regional offices, the centralized projects departments and others - as well as the present state of the art?
- What organizational steps should be taken to improve the efficiency of research activity in the ECD?

2. The attempts to articulate our concerns and interests has proved useful. There is an increased awareness of common ground and mutually reinforcing interests. It has been possible to identify concrete opportunities for sharing data, consultants, survey questionnaires and, of course, research findings. The program for the next two years also visualises some projects in which researchers will be drawn from two or more divisions of ECD or the Development Research Center (DRC).

I Recently Completed Work

3. The Department divides its time more or less equally between policy work, research work and mission support. The pressure of policy work during the last year reduced our research output. During the last year, the Department has virtually drafted the health policy paper, the housing paper, and the white paper on population. Significant inputs into the land reform policy paper, the rural development policy paper, and the eduction sector paper have been made, and an issues paper on rural works is under preparation on the basis of the Harvard report: An International Comparative Study of the of the Performance of Employment Creating Public Works Programs (3 volumes).

4. Many of these papers had a considerable influence on the thinking of senior management and sections of the development community. But they required a substantial commitment of staff time. As a result the progress of some of the Research Committee projects was slowed down. (See section V below).

5. The Department completed nine working papers during calendar 1974: four of these have passed the market test, judging by the number of copies distributed in response to demand by readers inside the Bank and outside.

Number	Title of Report	Author
170	Employment Implications of Industrialization in Developing Countries: A Survey	D. Morawetz (Consultant)
173	The Determinants of Earnings: Towards an Improved Model	John Simmons
176	The Theory of Capacity Utilization and Idleness	Gordon Winston (Consultant)
179	Urban Land and Public Policy: Social Appropriation of Betterment	Orville F. Grimes
181	International Sub-Contracting	Michael Sharpston
183	Fiscal/Financial Intervention, Factor Prices and Factor Proportions: A Review of Issues	S. Acharya
188	Education, Poverty and Development	John Simmons
191	Financing the Development of Small-scale Industries.	D. Kochav et al
192	Index-Linking of Financial Contracts: A Survey of the State-of-the Arts	K. B. Bhatia

6. Since the external research program started, seven Research Committee projects have been completed in the Department. They have resulted in three books and five papers. (Listed in the Annex). The books are:

(1) Helen Hughes, Prospects for Partnership - Industrialization and Trade Policies in the 1970's, the Johns Hopkins University Press, 1973.

(2) Y. Kislev and R. Evenson, Agricultural Research and Productivity, Yale University Press.(Forthcoming)

(3) Uma Lele, The Design or Rural Development: An Analysis of Programs and Projects in Africa. (Forthcoming)

7. Along with the book by Uma Lele, thirteen consultants' reports on individual rural development projects in Africa have also been completed. They contain a wealth of information about the problems of implementing rural development projects in Africa.

8. In addition, the Divisions and the Urban Poverty Task Force set up last year have completed a number of other studies listed in Annex . Many of them are being finished into Working Papers or publications.

II Priority Themes

9. As this is the first attempt to formulate a Department-wide research program, it is necessary to state our priority concerns as clearly as possible. These concerns are not altogether new. Some recently started research projects already reflect these priorities and it is intended that they will guide our future submissions to a larger extent than before.

10. Traditionally, development research has been mainly concerned with the allocation of investment required to maximise the present value of consumption, subject to foreign exchange and saving constraints. However, the experience of the last twenty years has led to some reorientation. In some countries, or some segments of national economies, rapid growth, high labor absorption, and reduction of inequity have been found to be complementary processes under appropriate policy regimes, but in other countries and over large segments of the economy, growth has been accompanied by growing inequity and unemployment. Therefore an important research task is to identify the circumstances in which growth and other objectives are complementary or competitive. Where they are competitive the relevant trade-offs have to be estimated and second-best allocations worked out. It is necessary to trace out the income distribution and employment consequences of alternative investment allocations as well as of alternative trade, technology and demand policies.

11. At the macro-economic level, the DRC's RPO 286 on prototype models reflects the new orientation and we will collaborate fully in this exercise. In addition, three of the macro studies of the ECD will focus on overall growth, and its relation with other objectives. One of these will be a study of export incentives. It is clear from the experience of many countries that policies to stimulate the export of labor-intensive manufactures can have a very high payoff in rapid and equitable growth. This study will aim at developing guidelines for efficient export incentive systems on the basis of cross-country experience. In another study the Industry Division will expand its current work on patterns of industrial development into a fairly large project on the sources of growth covering changes in the production structure, factor use and trade prospects. Thirdly, macro employment projections for three countries with alternative growth, demand and technology assumptions are being attempted in RPO 306.

12. The indirect effects of efficient overall growth policies are often more effective in the alleviation of poverty than direct measures. While work on such policies and their effects must continue, much greater priority should be given to more direct and specific measures to redress poverty. The identification of such measures is the central theme which has influenced the choice of topics on which some research is underway in the ECD and which will guide new research starts in the future.

13. Any anti-poverty strategy must increase, directly or indirectly, the share of the target groups (the urban and the rural poor) in asset creation, productive employment, and the benefits of public services.[1] In the rural as well as the urban areas, these groups include -

(a) small producers[2] with some productive assets, and
(b) the propertyless workers.

The small producers lack access to sufficient capital and tangible productive inputs; the workers lack access to sufficient employment; and both lack a fair share of public services.

14. Therefore, the three sub-themes on which we propose to stress research are:

(1) Small Unit Production;
(2) Employment Generation; and
(3) Public Services for the Target Groups.

In choosing these themes, the Department has given serious consideration to the needs of the operating Departments. Thus Small Unit Production is a priority area partly because the Agriculture and Rural Development Department of the CPS as well as Regional offices are deeply interested in the economics of small-scale farming. Also, some key people in Regional offices have shown a keen interest in the analyses of small industry production. Similarly, Public Services are a priority field of study partly because the Agriculture and Rural Development Department and the Transportation and Urban Projects Department are interested in analyzing costs and demands for various public services. Already, considerable work is being done in different parts of the Bank on water supply, sewerage, health, education, feeder roads and rural electrification.

15. A part of the analytical basis for pursuing these three sub-themes will be provided by Studies of Household Behaviour which constitute our fourth priority area. These studies are essential for the formulation of policy to stimulate small-unit production, to devise employment schemes and to determine the target groups' needs for social services as well as their capacity to pay for them. Finally, it is not only necessary to explore these questions singly but also in combination in the context of Designing Integrated Rural or Urban Schemes. This is our fifth priority area.

---

1 See Chenery et al. Redistribution with Growth.

2 We shall refer to small unit activity without distinguishing between entrepreneurs and workers although, strictly speaking, many small-scale entrepreneurs with substantial assets have high incomes.

III Work on the Priority Themes

16. Small Unit Production. Interest in small unit production derives from its potential for a factor use pattern suited to developing country endowments, and a more equitable distribution of the income generated.

17. A survey paper on small-scale industries (SSI) is being completed. The basic research tasks in this field is to understand the relationships - both complementary and competitive - between units of different sizes in various activities or sub-sectors of manufacturing. Where underlying relationships are complementary, research will focus on policy instruments (e.g. sub-contracting) and institutions which can strengthen these linkages. And where small units compete with large ones, research will aim at identifying fields in which small industry enjoys a comparative advantage so that promotional policies can be forumulated more precisely than is now possible. The main thrust of research may well be to exploit complementarities in the first instance. It is proposed that such research be taken up under a new project called the Microanalytics of Small Industry Production.

18. In the area of choice of technology a detailed study of capital-labor substitution in the engineering industry is nearing completion. And the industry Division will continue to monitor micro-studies of the choice of techniques in other industries.

19. A new Finance Division project is being planned to study in detail the allocation of credit by the commercial banking system and its links with the informal credit market in selected countries. One of its byproducts will be information on the access of small units to institutional credit and measures required to increase their share.

20. Another project to study the relationship between farm size and productivity in a number of countries is being developed in collaboration with the ILO. The intention is to explain the observed differences in various measures of productivity on farms of different sizes and their employment and distributional correlates, and derive implications for the allocation of credit, material inputs and extension services. Recent farm survey data from the Philippines, Malaysia and Malawi are already being analyzed.

21. Employment. A special focus on the employment implications of alternative policies is necessary because in many countries employment growth has lagged far behind output growth, and falls short of the growth of the labor force. And if substantial transfers of existing or new productive assets to propertyless workers is also not feasible, improvements in the incomes of such workers can only be brought about by employment generation. Work opportunities are, of course, sought not as ends in themselves but only as sources of income. But if first-best policies to establish a more appropriate pattern of growth or bring about direct asset transfers do not materialize, creation of work opportunities for the poor remains the only way for them to reach a minimum income level. If they are underemployed in the sense of having some assets with very low productivity, then productivity has to be increased. But if they are underemployed in the sense of having neither assets nor work, work opportunities must be created for them.

22. To understand the process of labor force participation and labor absorption, the structure of rural and urban earnings and the process of migration, numerous studies are underway or contemplated: on urban markets in Malaysia, Korea, and India (Bombay); rural labor markets in India, Philippines and Malaysia; on the structure of earnings in Tanzania, Malaysia, Peru, and Korea; and on migration in West Africa and other regions.

23. Some preliminary findings of the surveys of urban labor markets have been condensed in the Urban Task Force papers. (See list in the Annex). These papers have highlighted many problems and research needs.

(a) The issue of a desirable allocation of resources between rural and urban areas in different conditions and stages of development cannot be resolved without more empirical work on dualistic models in which all the important rural-urban interactions and overall resource constraints are specified. The dynamics of migration may also be understood better with such models than with single migration functions. Accordingly, more work on the specification and estimation of dualistic models will be developed. It is hoped that at least one good dualistic economy-wide model will emerge as a result of DRC work. Also, multi-sectoral models will begin to have considerable dualism built into them, i.e. production coefficients and processes of income accrual will be differentiated between different subsectors. The development of fuller rural-urban interaction models will hopefully generate a new conception of rural and urban development as interdependent processes. The effect of "urban" policy on the rural areas and of "rural" policy on the urban areas will be better appreciated; and the choice of policy instruments will improve in consequence

(b) Emerging concepts such as the "informal" sector and the organized "protected" sector have to be clarified in terms of more primary distinguishing criteria such as size, technology, ease of entry, coverage by collective bargaining and/or labor legislation. These criteria do not always overlap.

(c) Rural-urban, and formal-informal earnings comparisons have to be made with extreme care about the definitions of earnings actually used in different sectors and their comparability.

(d) Work on average rural earnings (and employment) and earnings (and employment) in the informal and formal urban sectors as a whole, by age, sex, education, migrant status, etc., needs to be supplemented with more information on earnings and employment structure by <u>production sector</u>.

24. These considerations need to be kept in view in further work on labor markets and migration.

25. Social Services. There are many basic issues which need to be researched in this field: the specification of adequate but low-cost standards for low-income communities; the estimation of costs by standard and by location; and pricing (subsidization) and financing.

26. Two ongoing research projects will be completed during the present year. One of them (RPO 241) brings together for four cities a wide range of basic data necessary for the analysis of urban service costs and needs; the other (RPO 270) presents a comparative analysis of the administration of local government and of the financing and provision of local public services in eight cities. A third research project (RPO 318) has recently been started in this field, and focuses on the issue of public utility pricing in urban areas. In the health sector research is contemplated on the health status of communities, the definition of desirable service standards, and the delivery of low-cost health services in rural and urban areas. Child nutrition will be the subject of a separate project. On education, after the completion of two ongoing projects on the benefits of schooling, and educational reform, a study of appropriate patterns of rural education is being programmed. Some work on skilled manpower forecasting and planning is also contemplated.

27. One of the current Finance Division projects (RPO 296) is expected to shed considerable light on the distribution of the benefits of public expenditure on social services by income distribution, ethnic group and location (with Colombian and Malaysian data). It will also identify the factors influencing the effective damand for services. The results will yield obvious implications for the re-allocation of public expenditure required to improve the distribution of benefits. It is intended to develop another phase of this project in FY 1977.

28. Household Behaviour. Researchers working on different fields of development economics have become increasingly aware of their common need to study in depth the interrelationships between different aspects of the behaviour of low-income households. It is well-known that in low-income regions small-unit agricultural and industrial activity is not sharply differentiated from other activities of household. Their production decisions, consumption and saving behaviour, and their choices regading family-size, schooling, migration and the allocation of time between work and other activities are interdependent. But the links between these choices are only imperfectly understood. For reducing this knowledge-gap, surveys of the same sample households should cover more variables so that inclusive models of household behaviour can be tested. There are substantial research economies to be gained from coordinating partial farm surveys, employment surveys, consumption surveys, and social surveys. On the other hand there are obvious diseconomies of overdesigned questionnaires. In practice, therefore, coverage should be increased subject to the feasibility of efficient data collection. These questions are being explored in RPO 303. It is expected that on the basis of more comprehensive micro data the analytics of employment and migration, fertility differences, earnings, consumption and savings, and the target groups' need for public goods and their ability and willingness to pay for them will be improved.

29. Household survey techniques are already being tested and improved in Northeast Brazil (RPO 299). On the basis of this experience, more survey work may be taken up in one or two other countries with local institutional collaboration. The DRC is concurrently developing models of household behaviour in its new project on the Analytics of Rural Communities which will be tested with survey data.

30. More survey data are particularly needed for a deeper study of fertility behaviour. The Population and Human Resources Division is analyzing economic as well as anthropological data from eight villages in African and South Asian countries (RPO 302) to establish the relative influence of different factors in the determination of family size. And it will continue to study the causes of inter-country and intra-country fertility differentials with survey data. While techniques of more comprehensive surveys are improved, more limited surveys will continue to be necessary to fill particular gaps in information. One such critical gap exists in respect of rural savings. Therefore the Finance Division plans to take up a field survey of rural savings and assets choices in FY 1976, following the clarification of conceptual issues under RPO 304.

31. The contribution of the Bank to large-scale field survey activity can only be to conduct a few prototype surveys, to clarify concepts, and design and test alternative questionnaires and tabulations. Eventually, survey activity would require sufficient manpower and resources to justify cost-sharing among all the major international research donors and national statistical organizations.

32. Design of Integrated Investment Schemes: A large number of integrated or comprehensive projects and programs are currently being prepared by the Bank for the development of specific regions. They are comprehensive in the sense that they are designed to combine the stimulation of small unit production, labor absorption and/or the provision of services for the target groups. Most of the new rural development projects include very substantial infra-structure and social service (or rural works) components besides direct production inputs. For urban areas, more limited sites and services projects are being formulated. But linkages between urban land policies, housing policies, transportation policies, and improvement of the access of target groups to sources of employment and public services are being increasingly recognized. Therefore, the emergence of more inclusive urban projects is only a matter of time. The Department has decided to launch major research projects to evaluate and improve the methodology of designing comprehensive rural and urban development projects and programs.

33. In designing complex rural projects, the main issue is to experiment with alternative methods of determining the right mix and phasing of different activities in view of relevant linkages and resource constraints.

34. In the field of urban planning, the intention is to select in cooperation with the operational departments and a host country an important urban complex and attempt comprehensive data collection and analysis for the planning of its development. The planning will aim specially at delivering

a minimum package of services to the urban poor; and exploiting economies due to linkages between individual urban development activities. The lessons of cross-country studies of urban land policies, urban labor markets, municipal administration and finance, housing, transport, etc., which have already been completed will be utilized in this exercise. The study will be a large multi-sectoral undertaking requiring the cooperation of at least three Divisions in the Department. It is therefore intended to start the main project only in FY 1977, after detailed in-house planning with the help of consultants during FY 1976.

35. This exercise will supplement cross-section studies of the variation of costs and demands for individual activities. It is felt that guidelines for the allocation of limited resources between different activities in a given situation can only be derived from an inclusive exercise for a given area. In choosing the area, in addition to the advice of the operating departments and the host country, the criteria will be the availability of data or facilities for collecting them, and the prospects of sizeable national and international investment. The size of the urban complex chosen is also important. There is a case for choosing a large metropolitan complex; but it has also been suggested that the dynamics of rapid urban growth and the problems of providing adequate urban services can be studied better in a medium-sized but fast-growing town. The choice of such a town will also keep the scale of the planning exercise within manageable limits. At present, our thinking is to devote not more than two or three average-sized RPOs to this study and to finish it in less than three years.

36. The Rural and Urban Divisions are also carrying out concurrent evaluations of a number of ongoing rural development projects and urban sites and services projects. This activity will be expanded. Over the past two and a half years the Urban Division has developed a methodology for the monitoring and evaluation of urban projects and will be testing this methodology over a five-year period on projects in Dakar, Lusaka, and San Salvador.

IV Other Studies

37. Institutional Studies. Development economists are acutely sensitive to the need for research on the institutional (political and administrative) dimensions of development. For institutions determine the extent to which target quantities are effectively accepted or realized. Many recent or current studies in the Department have concentrated on developing information on institutional structures e.g. the Africa Rural Development Studies, the Harvard Rural Works Study and the Latin American Land Reform Study in the rural sector; and urban land, housing, public utility and public finance studies in the urban sector (RPos 270, 298, and 318); and other studies of health and educational systems and of domestic financial systems. This emphasis will be maintained. In particular the Finance Division will develop a detailed study of the financial administration of rural development and the Urban and Population Divisions will continue to study the institutional aspects of delivery systems.

38. Population. Besides the factual-analytical work on fertility differentials, the Population and Human Resources Division proposes a review of significant family planning experiments. It will also attempt some experimental simulations of the macro-interactions between different rates of population growth, population structure and economic variables.

39. Food. A new project is being started to design and estimate simulation models of the buffer stocks of food grains (RPO 324) and the Department will collaborate in the continuous monitoring of the world food situation and food policies.

40. Brief descriptions of 24 RPO projects now on the active list in the ECD (see Annex) have been included in the World Bank Research Program (October 1974).

V Some Organizational Issues

41. From the standpoint of research, the Department's three-fold activity-mix is both an asset and a liability. It is an asset in so far as missions sensitize our analysts to operational problems and provide opportunities to field-test research findings. Similarly, policy work provides a means of communicating the policy implications of research to senior management in the Bank and the developing countries; and helps the Department in identifying new research issues. However, the three-fold activity-mix does accentuate the management problems for this Department, particularly because significant decisions on scheduling missions, and policy papers are made by other Departments. This situation imposes a constraint on our ability to adhere to some of the research project deadlines. Several RPO projects on the active list are more than two years old; and five are overdue in relation to revised completion dates. Some re-scheduling of work to permit the clearance of arrears will be clearly necessary. And in Divisions carrying a significant backlog, it will not be desirable to make new starts in FY 1976.

42. A full list of proposed RPO submissions as well as the current RPOs of each Division is given in the Annex. Altogether, the programming exercise has identified twelve proposed RPO starts for FY 1976 and eight for FY 1977. Given the backlog of unfinished work on existing RPOs, it will not be desirable to submit all twelve additional studies to the Research Committee in FY 1976. As new proposals are discussed further during the next two months, we should be able to prune the list and reschedule for later submission studies which can not be undertaken in FY 1976.

43. Research work undertaken outside the framework of the external research budget - the so called internal studies financed departmentally - is substantial. Current and proposed studies of this category are also listed in the Annex. Internal studies are of key importnace in preparing for prospective RPO or in taking advantage of research opportunities in a flexible manner. Without undermining this flexibility, it is necessary to improve procedures for internal studies to facilitate intra-Departmental communication and to fulfill reporting requirements vis-a-vis the Research Committee and the Board of Executive Directors.

44. The recent Board paper on Bank Research (R75-12) has reminded us that our job is not only to generate RPOs, not only to carry out the research design but also to actively disseminate research findings. This is an area in which we need to devise innovative approaches. One such approach has been to build a bridge linking researchers with potential consumers at an early stage in the process. For example, the country concentration exercise on Malaysia obtained the participation of Regional office personnel as well as Malaysian planners in designing a research package consisting of eight inter-related studies. We have tried to sustain the continued interest of consumers during the implementation phase by generating intermediate results. We are now attempting to translate preliminary results of the research into policy issues and conclusions for the benefit of the Basic Mission.

45. The Malaysian experience cannot be replicated widely, although we hope there will be other opportunities for organizing country-focused research. In any event, the Department will devise other procedures for making useful in an operational sense the results of its research.

DEVELOPMENT ECONOMICS DEPARTMENT

DIVISION: Office of the Director

Current and Proposed Research

No.	Current RPO Studies	No.	Current Internal Studies	No.	Proposed RPO Studies	No.	Proposed Internal Studies
280	Land Reform in Latin America						
306	Employment Models & Projections						
324	Buffer Stock Models						

DEVELOPMENT ECONOMICS DEPARTMENT

DIVISION: Economics of Industry

Current and Proposed Research

No.	Current RPO Studies	No.	Current Internal Studies	No.	Proposed RPO Studies	No.	Proposed Internal Studies
295	Capacity Utilization in Malaysia		Small Scale Industry - The State of the Art		FY 1976		FY 1976
305	Industrial Development Patterns		The Methodology of the Analysis of Export Incentives		Micro-Analytics of Small Scale Industry		Micro-analytics of small Scale Industry
307	CAMS		Choice of Technology		Export Incentives		Operationalizing Formal Project Identification Methods
223	Capital-Labor Substitution in the Engineering Industry (Participation in DRC Project)		Public Enterprises		A Survey of Project Identification Methods		Development of Production Activity in an Urban Area
					Sources of Growth (305 Phase II)		
					FY 1977		FY 1977
					Micro-analytics of Urban Production Activity (Phase II)		Not yet determined
					Development of Production Activity in an Urban Area		

DEVELOPMENT ECONOMICS DEPARTMENT

DIVISION: Urban and Regional Economics

Current and Proposed Research

No.	Current RPO Studies	No.	Current Internal Studies	No.	Proposed RPO Studies	No.	Proposed Internal Studies
270	Urban Public Finance and Administration (8 Countries)		Concurrent Evaluation of Urban Projects (Peru, Pakistan, Senegal, Zambia, El Salvador)		FY 1976 Concurrent Evaluation of Urban Projects (Senegal, Zambia, El Salvador)		An Exploratory Study of the Prospects of Research on Integrated Urban Planning for a Metropolis
290	The Urban Labor Market in a Rapidly Growing Area (Belo Horizonte)		Local Finances in Colombia		FY 1977 Integrated Urban Planning for a Metropolis		The Household Economy: A Comparative Study of Survey Data
297	Urban and Regional Subsystems (Malaysia)		Housing Needs & Priorities in Mexico		Pricing and Financing of Public Services (Phase II)		Institutional Aspects of Project Selection
318	Pricing & Financing of Public Services		Land in Urban Project Design		Urban Land Policies		
298	Urban Land Taxation and Control		Urban Poverty Task Force Studies				
241	Urban Data Needs of the IBRD						

DEVELOPMENT ECONOMICS DEPARTMENT

DIVISION: Population and Human Resources

Current and Proposed Research

No.	Current RPO Studies	No.	Current Internal Studies	No.	Proposed RPO Studies	No.	Proposed Internal Studies
242	Professional Structure		Urban Poverty & Health Levels (UPTF)		FY 1976		FY 1976
291	Benefits of Schooling		Correlates of Fertility Differentials		Migration in West Africa		Education & Manpower Planning
299	Fertility Behavior		Methods of Health Sector Analysis		The Value of Children*		Patterns of Rural Education
302	Population Growth and Rural Poverty		Review of Family Planning Experiments		Preschool Human Capital*		The Experience of Community Development
303	Household Surveys				FY 1977		Delivery of Low-Cost Health Services in Rural Areas
319	Educational Reform				Patterns of Rural Education		Population Growth and Economic Development (Model)
					* Only one of above will be started in FY 1976; the other in FY 1977.		Composition, Size of Family and Impact on Savings (Malaysia)
							FY 1977
							Delivery of Low-Cost Health & Education in context of Urban Area Study

DEVELOPMENT ECONOMICS DEPARTMENT

DIVISION: Employment and Rural Development

Current and Proposed Research

No.	Current RPO Studies	No.	Current Internal Studies	No.	Proposed RPO Studies	No.	Proposed Internal Studies
243	Labor Market & Education in Malaysia		Wage Structure in Tanzania		FY 1976		FY 1976
245	Labor Force Participation, Income and Employment		Determinants of Labor Supply to Rural Road Construction Projects in India		Structure of Rural Employment, Incomes, and Labor Markets		Farm Size and Factor Productivity
247	Unemployment in Costa Rica		The Urban Informal Sector		Rural-Urban Interaction Studies		Design & Evaluation of Rural Development Projects
275	Public Works		The Structure of Rural Poverty in the Philippines		FY 1977		Patterns of Labor Force and Employment Change in Selected Countries
293	Lilongwe Rural Development				Not yet determined		FY 1977
317	Labor Utilization in Rural Households (Participation in RPO 317 of the DRC)						Not yet determined

DEVELOPMENT ECONOMICS DEPARTMENT

DIVISION: Private and Public Finance

Current and Proposed Research

No.	Current RPO Studies	No.	Current Internal Studies	No.	Proposed RPO Studies	No.	Proposed Internal Studies
295	The Distributive Impact of Public Expenditures		Review of Issues in Commercial Banking in the LDCs		FY 1976		FY 1976
					Commercial Banking Behavior and Performance		Informal Credit Market
304	Rural Saving and Investment		An Analysis of the Informal Credit Market in Korea		Rural Saving & Investment (Phase II)		Final Administration of Rural Development
			Retail Prices & Taxation of Petroleum Products		FY 1977		FY 1977
					Financial Administration of Rural Development		Not yet determined
					The Distributive Impact of Public Expenditures (Phase II)		

ECONOMICS OF INDUSTRY DIVISION PAPERS

Structure of Industry and Trade

E. Anyanwu. Exports of Manufactures from Developing Countries. September 1974.

V. Prakash. Statistical Indicators of Industrial Development: A Critique of the Basic Data. September 1974.

G. Shepherd. International Trade in Cotton-type Textiles: A Case Study of Comparative Advantage. September 1974.

M. J. Sharpston. International Sub-Contracting. (forthcoming Oxford Economic Papers. May 1974.

E. Anyanwu. Industrialization in "Least Developed" Countries. January 1974.

U. Kerdpibule. Trends in Manufactured Exports in Southeast Asian Countries. January 1973.

H. Chenery. H. Hughes. Industrialization and Trade Trends: Some Issues for the 1970s (in Prospects for Partnership).1973.

V. Prakash. Compilation of Industrial Structure and Manufactured Exports Data. September 1972.

T. Ozawa. Labor Resource Oriented Migration of Japanese Industries to Taiwan, Singapore and South Korea. August 1972.

H. Chenery, H. Hughes. The International Division of Labor: The Case of Industry (in Towards a New World Economy), and also in Spanish (in Proceedings of the Conference of American Central Bank Technicians).

Prospects for LDC Manufactured Exports

E. Anyanwu. Evaluation of Some Export Projections for Developing Countries for UNCTAD III. March 1973.

H. Barkai. The Political Economy of LDC's Export Drive into Industrialized Countries Markets in the 1970's. January 1973.

H. Barkai. Adjustment Problems in EEC (in Prospect ...). 1973.

D. Wall. Japanese experience and Attitudes toward Trade Adjustment. 1973.

D. Wall. India's Trade Prospects in Changing World Environment. September 1972.

Incentive Policies for Industrialization

D. Wall. Preliminary Draft Report of IDA/Sussex/IBRD Project on Indian Export Policy. August 1974.

H. Hughes. Protection and Development. October 1973.

N. Hadjitarkhani. Preferential Trade Arrangements between Developing and Developed Countries, and among Developing Countries. June 1973.

D. Wall. Export Development Program for India. April 1973.

J. R. Hansen. Economies of Scale and Tariff Levels in the Iranian Motor Vehicle. March 1973.

H. Hughes. Trade and Industrialization Policies: the Political Economy of the Second Best (forthcoming in Structural Adjustments in Asian Pacific Trade, ed. by K. Kojima) February 1973.

D. Wall. The Impact of Generalized System of Preferences on India's Exports. February 1973.

Small Scale Industries in Industrialization

K. DiTullio (in collaboration with Bank and SIDA consultants). Financing the Development of Small Scale Industries. November 1974.

G. Shepherd. A Note on Efficiency Comparisons in Small- and Large-Scale Industry. April 1974.

K. DiTullio. Promotion of Small Scale Industries. (Presented at UNIDO/Mexico Conference). December 1973.

K. DiTullio and H. Hughes. Bank Group Support for Small Scale Industries in Manufacturing the Emerging Issues. June 1973.

Capacity Utilization

F. Thoumi. Working Capital Markets and the Utilization of Fixed Capital. September 1974.

G. Winston. The Theory of Capital Utilization and Idleness (forthcoming Journal of Economic Literature). April 1974.

F. Thoumi. The Utilization of Fixed Industrial Capital in Colombia: Some Empirical Findings (forthcoming Essays on Colombian Industrialization, ed. by R. A. Berry) December 1973.

F. Thoumi. Industrial Capital Utilization: Its Measures and Causal Variables. January 1973.

Regional Integration

F. Thoumi. The Andean Common Market: Development, Achievements and Current Issues. November 1973.

F. Thoumi. The Central American Common Market: Development, Achievements, and Current Issues. May 1973.

F. Thoumi. SIECA's 1972 Development Plan: A Comment. April 1973.

C. Jayarajah. The Caribbean Free Trade Area. April 1973.

C. Jayarajah. The Central American Common Market. March 1973.

C. Jayarajah. The East Africa Community. January 1973.

Foreign Investment and Technology Transfer

N. Schwartz. Breaking Down Package Deals in the Transfer of Technology. August 1974.

Division, in collaboration with EPDIF. Private Foreign Investment in Developing Countries. April 1973.

F. Thoumi. The International Market for Technology, Direct Foreign Investment, Market Structure, and Policies for Less Developed Countries. November 1972.

H. Hughes. Assessment of Policies Toward Direct Foreign Investment in the Asian-Pacific Area (in Direct Foreign Investment in Asia & the Pacific, ed. by P. Drysdale). 1972.

Issues in Project Appraisal

S. Guisinger and D. Papageorgiou. The Selection of Appropriate Border Prices in Project Evaluation. June 1974.

M. J. Sharpston. Inflation and the Bank's Operations: A Comment - Bank Policy. April 1974.

J. R. Hansen. A Guide to the Guidelines: The UNIDO Method of Economic Project Evaluation. November 1973.

J. R. Hansen. Summary of Principal Methods of Economic Project Evaluation. December 1972.

Tourism Sector

M. J. Sharpston and V. Joshi. Tourism and Economic Development: A Study of Antigua. November 1973.

Income Distribution and Employment in Industrial Strategies

A. Anyanwu, J. Mitra, L. Westphal. Increasing the Demand for the Labor Services of the Urban Poor. August 1974.

J. Mitra. Strategies for Improving Income Distribution in Iran. May 1974.

D. Morawetz. Employment Implications of Industrialization in Developing Countries: A Survey (in The Economic Journal) January 1974.

H. Hughes. The Scope for Labor-Capital Substitution in the Developing Economies of South East and East Asia: A Sectoral Approach (forthcoming in Technology, Employment and Development, ed. by L. White). January 1973.

J. R. Hansen. Industrial Development and Employment in Iran, Development Digest. January 1972.

Choice of Technique and Technological Progress

F. Thoumi. A Theory of the Optimum Age to Import a Durable Good with a Reference to the Colombian Case (submitted to Journal of Development Economics). November 1974.

G. Shepherd, S. Acharya, L. Squire. Choice of Technology: A Research Strategy for the Development Economics Department. April 1974.

M. J. Sharpston. Capital/Labor Substitution Possibilities: An Empirical Approach. July 1973.

Industrial Public Enterprises

R. Mahoney. Bibliography of Public Enterprise Economics. June 1974.

ANNEX

URBAN AND REGIONAL ECONOMICS DIVISION PAPERS

D. H. Keare, R. Bahl, E. Morss. A Review of the Status of Urban and Regional Studies at Major European Institutions. December 1971.

John C. English. Development Issues in the States of Kelantan, Trengganu and Pahang, Malaysia. September 1972.

D. H. Keare, E. Morss, L. Jeurling, L. Torress: Peru Economic Mission: Urban and Regional Aspects (Vol. 1) and Lima-Callao Metropolitan Area (Vol. II). October 1972.

Orvill F. Grimes, Jr. Land Prices in Kinshasa: An Empirical Overview. January 1973.

Remy A. Prud'homme. Sources of Local Finance in Zaire. February 1973.

Michael A. Cohen. "The Preparation of Site and Services Projects: A Discussion Paper". March 1973.

Orville F. Grimes, Jr. Property Rights and Land Tenure Patterns in Urban and Rural Areas of Ivory Coast. May 1973

Monique Cohen. The Economic Development of Madagascar: Urban and Regional Aspects. May 1973.

Mrinal Datta-Chaudhuri. Urban and Regional Development Policy and an Egalitarian Social Objective. September 1973.

John C. English. The Development of Regional Centers in Zambia. February 1974.

Bruce Herrick. Urban Self-Employment and Changing Expectations as Influences on Urban Migration. February 1974.

Bertrand M. Renaud. Employment Structure and the Stability of Urban Growth During the Urbanization Process. May 1974.

Bertrand M. Renaud. Endogenously Induced versus Externally Controlled Urbanization: The Impact of the Japanese Colonial Occupation in Korea. May 1974.

Orville F. Grimes, Jr. Reappraising Urban Land Tax Effectiveness Against Policy Goals. June 1974.

Mrinal Datta-Chaudhuri. A Methodological Note on the Formulation and Evaluation of an Area Development Programme. June 1974.

John Friedmann. An Approach to Policies Planning for Spatial Development. July 1974.

L. Kenneth Hubbell. Local Government Administration and Finance in Thailand. July 1974.

EMPLOYMENT AND RURAL DEVELOPMENT DIVISION PAPERS

Policy and Issues

Raj Krishna. "Land Reform and the Objectives of Policy" January 1974. Draft chapters of Land Reform World Bank Paper - Rural Development Series, July 1974.

________. "Lessons of Experience of Rural Development: (a) Community Development in India, (b) The Gezira Scheme in Sudan," and "Project Design and National Policy," August 1974. Draft chapters of Rural Development and Bank Policies: A Progress Report. December 2, 1974. Report No. 588.

Contributions from other staff members in the above Policy Paper

D. P. Chaudhri. "Factors Affecting Productivity on Different Size Class of Farm Holdings in India." May 24, 1974. (draft)

Raj Krishna. "Determination of the Optimum Activity Mix of Rural Development Projects." July 1974. (draft).

John Thomas, John Woodward, Shahid J. Burki, Richard M. Hook. "Report to the World Bank of An International Comparative Study of the Performance of Employment-Creating Public Works Program." August 1974. (draft)

Rachel Weaving. "African Experiences with Rural Development: A Digest Report on the African Rural Development Study." January 1975. (This digest report is drawn from the substantially longer and more extensive main report of Uma J. Lele, "The Design of Rural Development: An Analysis of Programs and Projects in Africa." September 1974).

The following main report by Uma J. Lele and 13 background papers done by consultants were published in the series of Studies in Employment and Rural Development. September 1974

Uma J. Lele. "The Design of Rural Development: An Analysis of Programs and Projects in Africa." Studies in Employment and Rural Development No. 1.

P. Abraham, F. Robinson. "Rural Development in Tanzania: A Review of Ujamaa." Studies in Employment and Rural Development No. 14.

Contributions to Bank Sector, Country, and Project Reports

R. Hofmeister. "Annex A: Toward an Employment and Growth Strategy," in Economic Situation and Prospects in Pakistan, Vol. II, Report No. 392-PAK. April 24, 1974.

Raj Krishna. "Identification of Small Farmers, Their Characteristics and Credit Requirements: Some Methodological Exercises with Indian Data." September 1974. (Paper prepared for Project Department, South Asia Region in collaboration with Malcolm McPherson.)

L. Squire. "Agriculture and Rural Development : Kermanshahan Ostan." Annex to Economic Report of Iran prepared in collaboration with J. Wrigley. January 1975. (draft).

_______. "Migration Survey: Kermanshahan Ostan." Annex to Economic Report of Iran." January 1975. (draft).

Rural and Public Works: RPO 275

S. J. Burki. "Employment Creating Urban Public Works Programmes: Outline of a Strategy.

David G. Davies. "An Essay on Employment Concepts."

J. W. Thomas. "Employment Creating Public Works Programmes: Observations on Political and Social Dimensions." (Papers read at SEADAG Conference, Baguio, Philippines August 21-24, 1973.

J. W. Thomas, S. J. Burki, Richard M. Hook. "Summary and Conclusions: An International Comparative Study of the Performance of Employment Creating Public Works Programs." June 1974. Paper presented at the OECD Conference on Rural Development, Paris, and at the Second International Seminar on Change in Agriculture Reading, England, September 9-19, 1974

G. Belloncle, D. Gentil. "French Technical Assistance in Cameroon: A Review of the Zones d'Action Pioritaires Integrees (ZAPI) and the Societe du Developpement du Nkam (SODENKAM." Studies in Employment and Rural Development No. 2 (in four volumes.

T. Tecle. "Rural Development Programs in Ethiopia: A Review of the Chilalo Agricultural Development Unit, The Wolamo Agricultural Development Unit and The Minimum Package Program." Studies in Employment and Rural Development No. 3.

H. Ruthenberg, H. Thimm, H. Jhanke. "Range Development in Kenya: A Review of Commercial, Company, Individual and Group Ranches." Studies in Employment and Rural Development No. 4.

J. D. Von Pischke. "Small Farmer Credit in Kenya: A Review of Major Credit Schemes." Studies in Employment and Rural Development No. 5.

D. Sullivan. "Smallholder Tea Project in Kenya: A Review of Kenya Tea Development Authority." Studies in Employment and Rural Development No. 6.

N. Bedi. "Rural Development in Kenya: A Review of Special Rural Development Program." Studies in Employment and Rural Development No. 7.

P. Mbithi, C. Barnes. "Land Settlement in Kenya: A Review of the Squatter Problem." Studies in Employment and Rural Development No. 8.

B. H. Kinsey. "Rural Development in Malawi: A Review of the Lilongwe Land Development Program." Studies in Employment and Rural Development No. 9.

G. Anderson. "French Technical Assistance in Mali: A Review of Groundnut Operation and Cotton Scheme." Studies in Employment and Rural Development No. 10.

H. Turner. "Small Scale Rural Industries in Nigeria: A Review of Industrial Development Centers." Studies in Employment and Rural Development No. 11.

M. Agarwal, D. Linsenmeyer. "Smallholder Tobacco Development in Tanzania: A Review of Urambo and Tumbi Schemes." Studies in Employment and Rural Development No. 12.

M. Collinson. "Cotton Development in Tanzania: A Review of Cotton Program in Sukumaland." Studies in Employment and Rural Development No. 13.

Comparative Experience with Land Reform in Latin America: RPO 280

E. Cifuentes. "La Reforma Agraria en Chile." November 1974 (internal draft).

J. Dorsey. "A Case Study of Ex-Hacienda Toralapa in the Tiraque Region of the Upper Cochabamba Valley." January 1975. Land Tenure Center, University of Wisconsin, Madison, (final version).

_______. "A Case Study of the Lower Cochabamba Valley, Bolivia." November 1974. Land Tenure Center, University of Wisconsin, Madison, (final version).

_______. "Major Land Reform Issues, The Case of Bolivia." December 1973, (internal draft).

Shlomo Eckstein. "Analisis Comparativo de Logros Economicos en la Comarca Langunera." August 1974, (internal draft).

_______. "Major Land Reform Issues, Mexico." November 1973, (internal draft).

_______. "A Multivariate Analysis of Case Studies." November 1974, (internal draft).

_______, Thomas F. Carroll. "Peasant Cooperation in Land Reform Programs: Some Latin American Experiences." August 1973. Paper presented at a Symposium of the 9th International Congress of Anthropological and Ethnological Sciences, Oshkosh, Wisconsin.

_______, Douglas E. Horton. "Major Land Reform Issues, The Case of Peru." December 1973, (internal draft).

Douglas E. Horton. "Land Reform and Reform Enterprises in Peru." June 1974. Land Tenure Center, University of Wisconsin, Madison, (final version).

G. Pinto. "Chapters II and II of Venezuela Land Reform Country Report." January 1974, (internal draft).

Evaluation of the Lilongwe Land Development Program: RPO 293

B. H. Kinsey. "Summary of Findings of the Lilongwe Land Development Program Follow-up Study." May 1974, (draft).

Rural Development in Africa : RPO 218

Uma J. Lele. "Designing Rural Development Programs: Lessons from Past Experience in Africa." Paper presented to the Second International Seminar on Change in Agriculture organized by the Overseas Development Administration and the University of Reading and co-sponsored by the World Bank, held at Reading, England, September 9-19, 1974.

______. "Phase I Report Africa Rural Development Study Part II." February 1974, (draft).

Shirin Velji. "Bibliography for African Rural Development Study." January 1974, (internal draft)

Labor Market and Education in Malaysia: RPO 243

Dipak Mazumdar. "Analysis of Dual Labor Markets in LDCs." Paper read at Research Conference on Urban Labor Markets, Geneva, September 9-13,1974.

______. "The Problem of Unemployment in Peninsular Malaysia." May 1974 (draft).

Labor Force Participation, Income and Unemployment: RPO 245

Dipak Mazumdar. "Rural-Urban Wage Gap, Migration and the Shadow Wage." November 1974 (revised draft).

______. "The Theory of Underemployment in Less Developed Countries." January 1975 (revised draft).

______. "The Urban Informal Sector." October 1974 (draft) (for Urban Poverty Task Force).

Peter Gregory. "The Impact of Institutional Factors on Urban Labor Markets." November 1974 (draft) (Urban Poverty Task Force).

Helen Soos. "The Impact of Select Rural Development Projects - On Income and Rural Migration." September 1974 (internal draft) (Urban Poverty Task Force).

Lyn Squire. "Choice of Technology: A Research Strategy for the Development Economics Department." March 1974. (in collaboration with S. N. Acharya and G. Shepherd) (final draft).

_______. "Economic Analysis of Projects." October 25, 1974. (in collaboration with H. G. van der Tak)(revised draft).

David Stanfield, and others. "The Impact of Agrarian Reform on Chile's Large Farm Sector." September 1974 (internal draft).

Lorene Y. P. Yap. "Internal Migration in Less Developed Countries: A Survey of the Literature." October 1974 (Urban Poverty Task Force) (draft).

Outside Publications

Shahid Javed Burki. "Development of Towns: The Pakistan Experience." August 1974. Asian Survey Vol. XIV, No. 8, pp. 751-762.

_______. "Employment Creating Urban Public Works Program: Outline of a Strategy." Autumn 1973. The Pakistan Development Review, Vol. XXI, No. 3, pp. 293-310.

G. F. Donaldson, J. P. McInerney. "Changing Machinery Technology and Agricultural Adjustment." August 1973. Proceedings of the American Agricultural Economics Association.

Raj Krishna. "Economic Research in India: Survey of Trends, Gaps and Possible Priorities." February 1974. Published in IBRD Social Sciences and Development (Bellagio Conference Papers).

POPULATION AND HUMAN RESOURCES DIVISION
MISCELLANEOUS PAPERS

K.C.Zachariah, Measurement of Internal Migration from Census Data, June 1974.

K.C.Zachariah, Income Distribution and Fertility Rates, November 1974.

G.Zafros and H.King, Mortality Pattern of American Clergy, 1974.

B. Newlon, Sources of International Assistance for Family Planning Activities, 1974.

B. Newlon, Present State and Future Prospects of Contraceptive Technology, 1974.

P.Visaria and B. Newlon, Differentials in Fertility, Mortality, and Family Planning Acceptance by Economic Status, December 1974.

T. King, Economic Research Priorities for Population Policy, October 1974.

F. Golladay and C. Koch-Weser, Health and the Urban Poor: An Introductory Analysis, December 1974.

M. Hossain and I.Sirageldin Population Research in Bangladesh and the Role of PSL/BIDS: A Tentative Plan for Research Activities, September 1974.

I.Sirageldin,M. Hossain and Mead Cain, Family Planning in Bangladesh: An Empirical Investigation, August 1974.

R. Moran, Notes on Employment Implications of Economic Integration In the Commonwealth Caribbean, October 1974.

P. Visaria, The Determinants of "Brain Drain", March 1974.

R. Repetto, The Interaction of Fertility and the Size Distribution of Income, October 1974.

R.E.B.Lucas, Population Migration in West Africa: Notes on a Proposed Household Survey, September 1974.

P.C. Chen, Family Planning in China, July 1974.

R. Cuca and L.Bean, Family Planning in Pakistan, A Review of CMS, February 1974.

L.Alexander and J. Simmons, The Determinants of School Achievement in Developing Countries: The Educational Production Question, February 1975.

J.Simmons, Cocoa Production: Economic and Biological Perspective, February 1975.

J.Simmons and S. Erbert, Schooling for Development? Students and Workers in Tunisia, January 1975.

J.Simmons, Benefits of Schooling for Workers, February 1975.

A. Dasgupta, Income Distribution, Education, and Capital Accumulation, May 1974.

J.Simmons, Investment in Education: National Strategy Options for Developing Countries, December 1974.

M. Selowsky, Pre-School Age Investment in Human Capital, December 1974.

M. Todaro, Education, Migration, and Fertility, December 1974.

J.Simmons, Investment in Education: National Strategy Options for Developing Countries, December 1974.

D. Jamison, Radio and Television for Education in Developing Countries, December 1974.

R. Dore, Deschool? Try Using Schools for Education First: The Educational Impasse in the Developing World, December 1974.

E. Schiefelbein, The Impact of the Jencks Type Research on Developing Countries, December 1974.

M. Blaug, Education and Employment, December 1974.

M. Carnoy, Schooling and Unemployment, December 1974.

R. Clignet, Education and Employment in Developing Nations: Fifteen Years Later, December 1974.

S. Bowles, Education, Class Conflict and Uneven Development, December 1974.

E.O. Edwards, Investment in Education in Developing Nations: Conflict Among Social, Economic and Political Signals, December 1974.

J. Simmons, Education, Poverty and Development, December 1974.

PUBLIC AND PRIVATE FINANCE DIVISION PAPERS

S. K. Singh. The Determinants of Aggregate Savings. March 1972.

S. K. Singh. Aggregate Production Function, Causes of Growth and Measures of Dynamic Efficiency. January 1973.

S. N. Acharya. Fiscal/Financial Intervention, Factor Prices and Factor Proportions: A Review of Issues. August 1974.

K. B. Bhatia. Index-Linking of Financial Contracts: A Survey of the State-of-the-Arts. November 1974.

Domestic Finance Studies

D. C. Rao. Resource Mobilization through Public Savings: A Case Study of Turkey's Plan Strategy. April 1973.

S. N. Acharya. Decentralization in Yugoslavia: 1947-1972: Implication for Monetary and Fiscal Institutions and Policies. May 1973.

K. Artus. Cross-Country Data on Government Expenditures Classified by Functions. December 1973.

D. C. Rao. Interest Rate and Credit Allocation Issues in Turkey. December 1973.

K. Artus. Tax Revenue Forecasting. May 1974.

J. Meerman. The Definition of Income in Studies of Budget Incidence and Income Distribution. July 1974.

K. B. Bhatia. Index-Linking of Financial Contracts: A Survey of the State-of-the-Arts. September 1974.

K. Bulutoglu. Fiscal Decentralization: A Survey of Normative and Positive Contributions. 1974.

W. S. Kee. A Positive Approach to Fiscal Decentralization. 1974.

K. Saito. An Examination of Changes in the Retail Price and Taxation of Petroleum Products in Developing Countries. 1974.

S. Bery. Public Sector Enterprises in India. 1974.

K. Bulugoglu. Public Sector Savings in Pakistan. 1974.

S. Acharya. Inter-Nation Monetary Cooperation in Commonwealth Caribbean: Problems and Prospects. 1974.

S. Bery. The Mobilization and Allocation of Resources in Iran. 1974.

J. Meerman. Redefining Pure Public Goods as Overhead Costs. 1974.

O. Yenal, M. K. Artus, L. K. Hubbell, Stickenwirt. A Study of Public Finances in Thailand. 1974.

S. Bery, Wilson, P. M. Meo. Public Borrowing in Panama. 1974.

S. Acharya, G. Shepherd, L. Squire. Choice of Technology: A Research Strategy for the Development Economics Department. 1974.

URBAN POVERTY TASK FORCE PAPERS

C.U. Chiswick, Identification of the Urban Poor: Some Preliminary Results and Hypotheses.

J. Perlman, Urban Marginality .

P. Visaria, Differentials in Fertility, Mortality, and Family Planning Acceptance by Economic Status.

P. Gregory, The Impact of Institutional Factors on Urban Labor Markets.

D. Mazumdar, The Urban Informal Sector

L.Westphal/J.Mitra/AAnyanwu, Increasing the Demand for Labor Services of the Urban Poor.

O.Grimes/J.Carson, Housing and Urban Poor

A. Churchill, Income Levels and Urban Transportation.

O.Grimes/R.Mohan, Approaches to Land Policy for the Urban Poor.

F. Golladay/C.Koch-weser, Health and the Urban Poor: An Introductory Analysis.

S.Reutlinger/M.Selowsky, Malnutrition and Poverty: Extent of the Problem and Discussion of Some (Domestic) Policy Options.

D. Lindheim, The Urban Policy Process

D.Mazumdar/L.Yap, Internal Migration in Less Developed Countries: A Survey of the Literature.

A. Sant'Anna, Household Composition, Secondary Earners and Urban Poverty: Some Preliminary Results.

M. Cohen, Designing Anti-poverty Strategies: Political Obstacles and Opportunities.

RESEARCH GEN.

DPS & CPS Directors, February 10, 1975
Regional Chief Economists
D. C. Rao, VPD DR

Research Proposals for FY76

1. The Research Committee has tentatively decided to meet on April 14 and May 19 this year to consider proposals for FY76 financing. Proposals should be submitted for new research projects and for ongoing projects if there is an expansion of the scope of work or a new phase of a previously authorized work program. New proposals will not be necessary for other projects.

2. It is possible that due to slippage of work, some ongoing projects scheduled to be completed during this fiscal year will require financing in FY76. New proposals are not necessary for this purpose. Project sponsors should keep me fully informed about the probable slippage of work and anticipated financial implications.

3. I am enclosing a number of copies of the "Policies and Procedures" booklet for distribution to researchers who intend submitting proposals. I must draw your attention to the Research Proposal form that is included in Annex II of this booklet. Please ensure that all research proposals from your Department are submitted on this form and signed by you. Additional copies of the booklet and the research proposal form are available in my office.

4. Research proposals will be scrutinized by small panels whose recommendations are placed before the Research Committee. To allow sufficient time for this scrutiny, the deadlines for submission of proposals are March 27 and May 1 for the April and May meetings respectively.

5. Please inform researchers that proposals should be submitted complete in all respects by the deadline dates. Researchers should feel free to check with me in advance of the deadline if they are uncertain about the completeness of their submissions.

6. Researchers who are unable to provide complete proposals in time for the April meeting should give notice of their intention to submit proposals for the May meeting or later in FY76. It is to the researchers' advantage to indicate their likely financial requirements during FY76

even though a full project description cannot be supplied at this stage. Notice of expected submissions should indicate the expected date of submission of the proposal, the rquirements during FY76 and the expected total cost of the project. Additional information about the project should be provided to the extent possible.

7. To recapitulate:

(a) March 27 is the deadline for (i) submission of new research proposals for the April meeting, and (ii) advance notice of later submissions for FY76 financing;

(b) May 1 is the deadline for submission of new proposals for the May meeting of the Research Committee

cc: Mr. B. B. King
Mrs. M. Hazzah

Encl.

DCRao:gm

RESEARCH - GEN

Mr. J. Adler, P & B

February 7, 1975

B. B. King, VPD Signed B. B. King

Research Program - Budgetary Procedure

1. I am sorry that, because of being away sick, I haven't replied before to your memorandum of January 30. Generally, it appears to me most satisfactory. However, in order to be absolutely sure that we mean the same thing, I am putting down my version with an example attached.

2. The carry forward authorized at the beginning of any fiscal year is additional to accruals under current procedures.

3. The carry forward at beginning of FY2 is then the lesser of:

(i) Carry forward at beginning of FY1 Plus Budgetary authorization for FY1 Minus Expenditure (including both disbursements against FY1 and accruals into FY2) in FY1

(ii) Some agreed percentage (a) of budgetary authorization for FY1

4. I would agree that "a" should be 10%, on the understanding that the carryover authorized is additional to the current accrual procedure (otherwise 10% is far too low).

5. Is there any chance of a modest "a" for FY75?

cc: Mr. H. Schulmann
Mr. D. C. Rao
Mrs. M. Hazzah

Attachment

BBKing:gm

EXAMPLE
($'000)

	FY1	FY2	FY3	FY4
Carry forward from previous FY	0	150	220	120
Accruals from previous FY	300	250	350	350
Budget authorization	2,000	2,200	2,400	2,600
Resources	2,300	2,600	2,970	3,070
Disbursements against accruals	300	250	350	350
Disbursements against current FY budget	1,600	1,750	2,150	2,200
Accruals against current FY budget	250	350	350	300
Uses	2,150	2,350	2,850	2,850
(i) Difference	150	250	120	220
(ii) 10% of budget	200	220	240	260
Carry forward	150	220	120	220

February 7, 1975

Research

Research Committee Members February 6, 1975

D. C. Rao, VPD

Board Discussion of Bank Research

The following points emerged at the Board discussion of the research program (on February 4) requiring specific action.

1. Total Cost Estimates. Mr. McNamara promised to present an estimate of the total costs of the Bank's research activities at the consideration of next year's budget. I shall liaise with P & B on this.

2. Abstracts of Results. Mr. Reynolds suggested that we publish abstracts of the results of research projects similar to the abstracts of ongoing studies. There are two ways to pursue this good idea. One is to ask the researcher to provide such an abstract with the completion report. Another technique is to ask the economist/editor to generate short abstracts of publications. I will pursue both these possibilities. Needless to say, such abstracts will have to be user oriented.

3. Research on Public Enterprises. Mr. Sen was rather emphatic on the need for research on public enterprises. We will give him more details about the IDRC research project on this subject.

4. Next Year's Report. Based on the comments at the neeting, we shall have to prepare to include in next year's report:

(a) a systematic review of the research being undertaken in loans and credits;
(b) a discussion of the efficacy of arrangements to avoid duplication of research being undertaken elsewhere;
(c) an evaluation of completed projects.

5. I shall review the Board transcript when it is available to see if there is anything particular that I have missed.

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu, B. B. King Lerdau, Schulmann, Thalwitz, van der Tak, Vergin, Waelbroeck, Yudelman, Mrs. Hughes

cc: Mrs. Hazzah

DCRao:gm DCR

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

FEB 6, 1975

OFFICE MEMORANDUM

TO: Mr. Hollis B. Chenery, VPD

DATE: February 5, 1975

FROM: Helen Hughes, ECDDR

SUBJECT: Board Meeting: February 4, 1975

1. Research Program: This year's discussion of the research program while supportive in general terms, was not as warm or congratulatory as last year's. The Board has obviously become used to having a research program. There were two principal strains in the Directors' comments. Mr. Janssen in his personal capacity, though less so on behalf of his principals, and Mr. Reynolds, introduced notes of strong budgetary caution, and focused on the need to relate the research program as directly as possible to the Bank's operations. Staff were asked to illustrate ways in which past research actually had been useful to operations. Mr. van der Tak obliged by reference to the project evaluation exercise. Mr. Browning, with support from Mr. Witte and Mr. Hori countered with a more expansive view, appreciative of the value of research, and suggesting that the budget should not be unduly constrained. Mr. McNamara concluded the discussion by stating his conviction that "wise" investment was essential for development. He was "uneasy" because he thought that the investments the Bank was undertaking were not always "optimal". He thought that if the Bank could attain higher certainty about the outcome of its lending by designing the right sort of research to answer questions about how to make lending "optimal", then he would be prepared to recommend much greater sums on research than the Bank was now spending. However, he was not sanguine that we knew how to ask the right questions. Given this, and the budget situation generally, it is not likely that there will be an increase in the research budget for FY76.

2. As almost all the Directors wished to contribute, the range of issues covered was very wide indeed. The following seem to require the greatest attention:

(a) The Directors reiterated, as they had suggested last year, that they would like to see a comprehensive accounting of the Bank's research expenditures, including all in-house and project-associated research.

(b) Coordination with other researchers and research institutes, particularly in developing countries were again mentioned, as they were last year. Seminars to present research results to officials in developing countries were suggested. The dissemination of work in progress and completed was discussed.

(c) The country coverage was discussed, notably by Directors representing countries not covered by current research programs.

(d) Mr. Sigurdson favored more attention to sociological and similar research to focus on motivations for change.

(e) The question of what is a "pay off" of research and in what sort of time framework was aired.

(f) There were advocates of several specific topics including balanced versus unbalanced growth, public enterprises, the problems of the semi-industrialized countries and tourism.

3. Rural Development: This paper was well received, with discussion going on till late in the afternoon. All the Directors clearly wanted to show their commitment to rural development.

4. Almost every issue which had been discussed during the paper's gestation period and writing was raised. It was particularly interesting to see the Directors focus on problems which had either been left out, or played down after the various reviews. These included: the trade off between food output and small farmer promotion in countries where this is an important issue; land ownership as a rural development factor; problems of the landless and de factor landless, that is marginal small farmers without sufficient land to make an agricultural livelihood, and rural urban migration.

5. From an operational point of view, an equally interesting range of questions and comments covered the trade-off between the inevitable slowness of lending for rural development projects and the need for a rapid transfer of resources to countries, and the issues inherent in seeking to meet the rural development needs of South Asia. Mr. Clark pointed to the need for great flexibility with regard to local cost, procurement packaging, the implications of an imaginative approach to intermediate technology for international bidding, and the need for negative interest rates. While some Directors had commented favorably on the importance of full user charges to enable projects to be expanded, he saw a need to forego user charges in some instances. He stressed that staff should not feel inhibited in innovating in rural development projects.

6. Questions of adequacy of Bank manpower for the rural development task were raised; the need to rely on local organizations of small farmers, and to train local organizers rather than give in to the Bank "penchant" for expatriates was also noted.

c.c. Mr. Stern, Mr. Duloy, Mr. Pyatt, Mr. Haq, ECD Division Chiefs., Mr. Tims, Mr. Holsen, Mr. Muller, Mr. Rayfield

HHughes/kg

Xeroxed to D.C. Rao
D.
2/7

Research

February 5, 1975

Mr. H. P. Srivastava
"STAR VILLA"
M-100A, Greater Kailash-I
New Delhi - 110001
India

Dear Mr. Srivastava:

I am replying on behalf of Mr. McNamara to your letter of January 11, 1975.

I was interested in your comments regarding the study of management problems in developing countries and your proposals for work in this area should be most worthwhile. Unfortunately, however, the World Bank is not in a position to finance this type of study project, and I suggest you approach possible sources of assistance within India.

With best wishes in your endeavor,

Yours sincerely,

Edward B. Cunningham
South Asia Department

JUpadhyay/EBCunningham:ao

cc: Mr. Burmester
Mr. Melmoth

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

PP

OFFICE MEMORANDUM

TO: Mr. Benjamin B. King

DATE: February 4, 1975

FROM: Harold B. Dunkerley, TRUDR

SUBJECT: Research on Bicycle Transport

1. The recent resurgence of interest in the bicycle as a form of urban transportation both in developing and developed countries has focused attention on the need to develop safe and efficient bikeway facilities. For the developing countries, given that a large segment of urban population cannot afford any form of motorized public transport, the potential offered by the bicycle is of particular importance as emphasized in the recent urban transport policy paper. In the discussion of this paper, the need for following up this potential was strongly suggested by several members of the Board.

2. Several research activities, mostly in the U.S. and Europe, have been initiated to determine "design criteria", capacities, specifications and guidelines for various types of bikeway facilities. There have also been efforts to explore street right-of-ways and to examine the impact of such facilities on motorized traffic and land use. The problems posed by mixing bicycle traffic and motorized traffic at intersections have been studied and several alternative intersection designs have been developed.

3. Up to now these research efforts have been uncoordinated. Most of the studies on capacities and speeds undertaken so far have been "theoretical" in their approach. There has been no empirical follow-up to test and ascertain the results arrived at by these efforts. At the present time the findings of the various efforts exhibit a wide range of variations. This is particularly true of estimated capacities of different types of bikeways, and the relationships between speed and flow of bicycle traffic.

Objectives

4. The purpose of the proposed reasearch is to determine empirically the cost, capacity and flow parameters of bikeways. This would enable Bank staff to assess the potential for safe bicycle transport in various circumstances in the cities of developing countries. To this end the research proposed will:

a) assess the "state of the art" from a literature search;

b) obtain speed/flow relationships under controlled conditions in different countries, and compare the results with observations on non-controlled situations.

c) assess the main causes of bicycle accidents in developing countries and recommend appropriate measures.

d) shed light, by means of theoretical studies, on the possibilities of journey-to-work travel being performed by bicycle transport in cities of different sizes, shapes, densities and journey patterns.

e) review proposals for the design and manufacture of bicycles suited to the conditions of developing countries and, if appropriate, test prototype models.

5. As an initial step it is proposed to examine the speed/flow relationships of different types of bikeways, items (a) and (b) in the foregoing list. We have learned that Professor R.J. Smeed of England is also interested in this problem and he has offered to carry out an empirical study for the Bank. We feel that because of his wide experience in the analysis of speed/flow relationships Prof. Smeed is very well suited for this task and his offer represents a good opportunity to increase our understanding of the potentials of the bicycle; this is, of course, directly related to various of our urban transport projects. He has indicated that he would be able to supervise fully controlled experiments and the cost of the study would be modest, not more than \$15,000 to \$20,000. He wishes, however, to be assured that funds could be made available of roughly this magnitude--if his proposal is judged appropriate--before he goes on to develop his proposal in detail.

6. I feel this is a matter of sufficient importance to justify such an assurance being given. He is the type of individual who can be expected to put an important effort into any proposal he makes.

7. As I shall be leaving for London on Thursday morning, February 6, I would be grateful for any indication you can give.

cc: Messrs. Rao and Yucel

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

Research General

OFFICE MEMORANDUM

TO: Research Committee Members

DATE: February 3, 1975

FROM: D. C. Rao, VPD

SUBJECT: Annex to Board Paper on Research

In the attached folder you will find a few tables/notes which relate to the annual report on external research. They have been prepared for possible use at the Board meeting on February 4; you might find them of interest.

Attachment

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
B. B. King, Lerdau, Schulmann, Thalwitz,
van der Tak, Vergin, Waelbroeck, Yudelman,
Mrs. Hughes

cc: Mr. Stern

RESEARCH ANNUAL REPORT

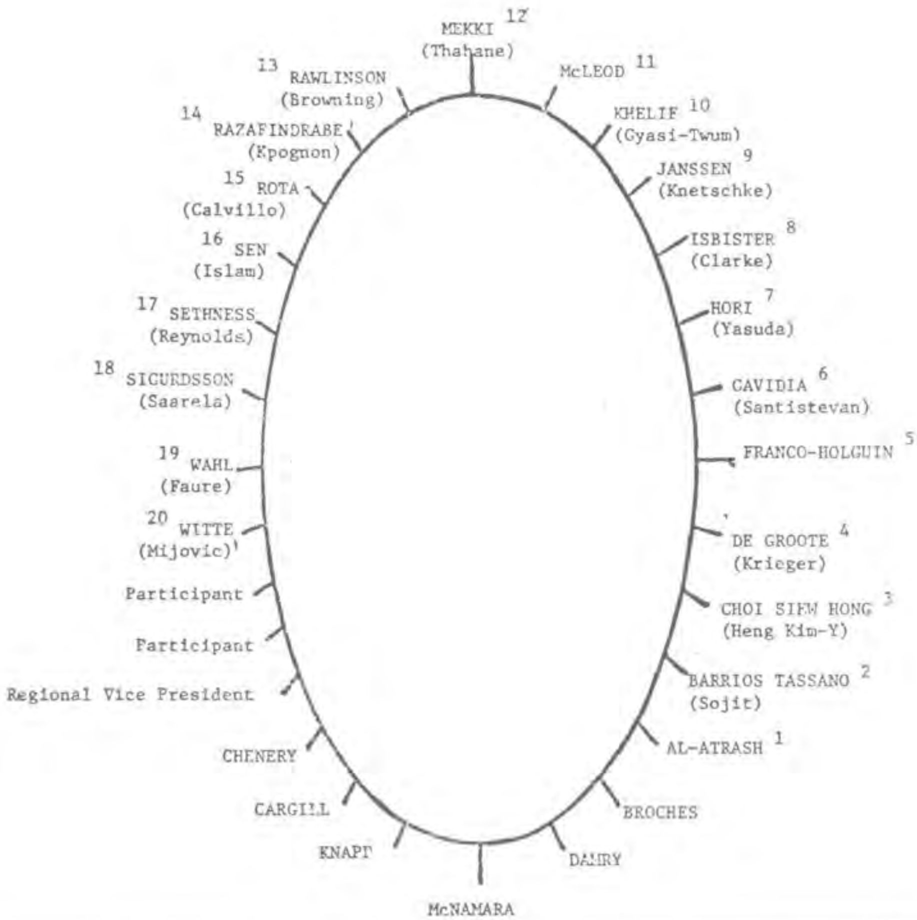
Annex Tables

1. E.D.'s Seating Chart
2. Staff Attending
3. Departmental Distribution of Research
4. Staff Time Estimates
5. Research financed Under Loans/Credits
6. Co-financing of Research Projects
7. Policy/Issues Papers Related to External Research
8. List of Research Projects by RPO Numbers
9. Notes on Report Tables (Tables 1, 3, 4)

Annex 1

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT - INTERNATIONAL DEVELOPMENT ASSOCIATION

EXECUTIVE DIRECTORS - SEATING CHART



1. Bahrain*
   Egypt, Arab Rep. of
   Iraq
   Jordan
   Kuwait
   Lebanon
   Pakistan
   Qatar*
   Saudi Arabia
   Syrian Arab Rep.+
   United Arab Emirates*
   Yemen Arab Rep.

2. Argentina++
   Bolivia
   Chile
   Paraguay
   Uruguay*+

3. Burma
   Fiji
   Indonesia
   Khmer Rep.++
   Korea
   Laos
   Malaysia+
   Nepal
   Singapore*
   Thailand
   Viet-Nam

4. Austria++
   Belgium+
   Luxembourg
   Turkey

5. Brazil
   Colombia+
   Dominican Rep.
   Ecuador
   Philippines

6. Costa Rica
   El Salvador+
   Guatemala
   Haiti
   Honduras
   Mexico
   Nicaragua
   Panama
   Peru++
   Venezuela*

7. Japan

8. Bahamas*
   Barbados*
   Canada+
   Guyana
   Ireland
   Jamaica*++

9. Germany

10. Afghanistan
    Algeria+
    Ghana++
    Greece
    Iran
    Libyan Arab Rep.
    Morocco
    Oman
    Tunisia
    Yemen, People's Dem. Rep. of

11. Australia++
    New Zealand*+
    Western Samoa

12. Botswana
    Burundi
    Equatorial Guinea
    Ethiopia
    Gambia, The
    Guinea
    Kenya
    Lesotho++
    Liberia
    Malawi
    Nigeria
    Sierra Leone
    Sudan+
    Swaziland
    Tanzania
    Trinidad & Tobago
    Uganda
    Zambia

13. United Kingdom

14. Cameroon
    Central African Rep.
    Chad
    Congo, People's Rep. of
    Dahomey++
    Gabon
    Ivory Coast
    Malagasy Republic+
    Mali
    Mauritania
    Mauritius
    Niger
    Rwanda
    Senegal
    Somalia
    Togo
    Upper Volta
    Zaire

15. Italy+
    Portugal*
    Spain++

16. Bangladesh++
    India+
    Sri Lanka

17. United States

18. Denmark
    Finland++
    Iceland+
    Norway
    Sweden

19. France

20. Cyprus
    Israel
    Netherlands+
    Romania*
    Yugoslavia++

Bank - 125 Members
IDA - 113 Members

*Not an IDA Member
+Country of Executive Director
++Country of Alternate Executive Director

(Rep. of China and South Africa, not having voted for an Executive Director, are not formally represented by an Executive Director.)

Secretary's Department
January 1975

Annex Table 2

Staff Expected to Attend Board Meeting

Research Committee Members	Others
DPS	DPS
Hughes	Gulhati
Balassa	Duloy Ahluwalia
CPS	CPS
van der Tak Yudelman	Jaycox Hultin (Education) Warford (Public Utilities)
Others	Others
Karaosmanoglu Lerdau Schulmann Thalwitz Vergin	

January 31, 1975

Annex 3

DEPARTMENT PROFILE OF EXTERNAL RESEARCH PROGRAM

		FY73	FY74	FY75 1/
I.	Development Policy Staff	59.0	69.5	59.6
	Development Economics	20.7	26.3	23.3
	Economic Analysis and Projections	7.8	7.0	5.8
	Development Research Center	30.5	36.2	30.5
II.	Central Projects Staff	40.6	27.8	34.7
	Transportation and Urban	25.9	12.3	21.2
	Public Utilities	8.3	7.4	5.6
	Agriculture and Rural Development	4.4	2.5	4.1
	Education	2.0	2.8	2.6
	Industrial Projects	-	2.8	-
	VPS	-	-	1.2
III.	Region	0.4	1.5	3.1
IV.	Other	-	1.2	2.6
	TOTAL	100.0	100.0	100.0

1/ Based on authorizations up to January 30, 1975, totalling $2,104.1.

January 30, 1975

Annex 4

Staff Time on Research
(Est. FY74 manyears)

Summary	External	RPO Preparation	Other	Total
DPS	27.7	10.7	10.4 /1	48.8
CPS	9.9	7.1 /2		17.0
Total	37.6	28.2		65.8

/1 Includes Commodity Division (3.3 manyears), paper on technology research and studies in Population Division.

/2 Includes Transportation Department - 0.9 manyears
Agriculture Department - 2.7 "
Tourism Department - 1.5 "

Source — External : Quarterly Status Report
Other : Computer printout of time reporting system (CPS dated September 1974)

Conversion — DPS : from manmonths @ 12 per year
CPS : from manweeks @ 52 weeks per year

January 31, 1975

Research Financed Under Loans & Credits

A good deal of research or something akin to research is now being financed under loans and credits. Until recently, there has been no central comprehensive record of these activities. In agreement with Mr. Knapp's office and with the Central Projects Staff, we have begun to create such a record. In doing this, we hope to collaborate closely with the Science Adviser, since the record would include technical as well as socio-economic research.

We have, so far, completed a preliminary compilation for loans and credits made during FY74. Even this limited compilation reveals that there are substantial difficulties in definition of what constitutes research, which will have to be ironed out in a logical and consistent manner before we continue the work by maintaining the record for FY75 and also carrying it back to earlier fiscal years. The compilation for FY74 has recently been circulated to various departments of the Bank for their comments. When we have received these comments, we will make the necessary changes to our procedures and continue the work. I would stress at this time, however, the need to make haste slowly in order that we may have a single record which has credibility throughout the Bank.

RESEARCH COMPONENTS FINANCED OUT OF LOANS AND CREDITS - FY74

Country PR Report No. Project Title	Report Reference/1	Research Component	Financing: Bank Loan IDA Credit	Financing: Total Project Amount (US$ million)	Financing: Amount Research Component	Consultants Research Institutions/Agencies Responsible	Start Completion Date	Classification
I. AGRICULTURE								
Cameroon - 1362-CAM Livestock Development		The project provides for 12 man-years for overseas graduate and post-graduate training for specialists in livestock production, livestock credit, tsetse fly survey and eradication.	11.6	14.6	N.A.	N.A.		
Congo - 1316-COB Congo Livestock Project	PA 149a Annex III	Applied research on (a) pasture establishment and utilization; (b) animal husbandry; (c) ranch management; (d) development of techniques needed to support further livestock development.	5.6	8.7	N.A.	Office du Ranche de la Dibesse (ORD)	1974-80	
Ecuador - 1241a-EC Milagro Irrigation		Research on seeds, and seed multiplication. For this purpose 40-60 ha at Boliche Experimental Station will be improved for irrigation and data from on-going research on maize, rice, groundnuts, soybeans, and oilseed crops will be made available to the Project on a continuing basis.	3.5	10.2	0.04	National Agricultural Research Institute (INIAP)		
Ethiopia - 1425a-ET Second Wolamo Agricultural Development II		Assistance to the Wolamo Agricultural Unit (WADU) for on-going research on diversification and fertilizer use for cash crops and fodder. An appropriate system of research coordination with Institute of Agricultural Research will be set up.	12.0	17.57	N.A.	N.A.		
Ethiopia - 1445a-ET Drought Areas Rehabilitation	44a-ET Annex 2 para. 3.35	A. Survey studies on (1) water development; (2) conservation measures; (3) roads; (4) surveys and planning in connection with the reorganization of landholdings; (5) evaluation programs. B. Agricultural trials and minor rural industries research and development.	10.0	10.0	A. 0.36 B. 0.38	Institute of Agricultural Research	1973-77	
Guyana - 388-GUA Tapakuma Irrigation		Establishment of three research farms for Guyana Rice Board in areas representative of the main soil types to carry out research on variety trials, fertilizer response, water requirements, pest and disease control, seed testing, and improved cultivation techniques.	12.9	18.5	0.4	N.A.		
India - 1356-IN Himachal Pradesh Apple Processing & Marketing Project	362a-IN para. 5.16	Project evaluation study to set up a large-scale integrated system aimed at improving processing and marketing of a perishable horticultural crop.	13.0	21.7	0.091	N.A.	1975-78	
India - 1462-IN Chambal Command Area Development Project	430-IN Annex 9 para. 24	Research on cropping patterns, net returns and farm income studies, research on soil capabilities and drainage requirements. Development of irrigation plots for training of staff. Reclamation of saline and alkaline soils. Applied research on water use, fertilizer response and soil fertility.	52.0	91.5	0.065	N.A.	1975-82	
Israel - 1317a-IS Second Agricultural Credit Project	234a-IS para. 3.16	Research on commodities, citrus, tropical fruit, turkey and mutton.	35.0	84.0	1.5	Agriculture Research Organization (ARO) of Israel	1974-77	
Korea - 1322-KO Seed Project	PR-34	Research on crop breeding and cultural practices, cereal grains, soybeans, potatoes and forages.	7.0	22.8	N.A.	Office of Rural Development, Seoul College of Agriculture, Seoul	1974-78	
Mali - 1398a-MLI Integrated Rural Development Project	PR 33	Applied research on diversifying agricultural production in the project area; improve local varieties of groundnut and adapting materials developed in countries with similar conditions - soil survey and trials.	8.0	18.9	0.61	Bureau pour le Development de la Production Agricole (BDPA) Groupement d'etude et de Recherches pour le Development de l'Agronomie Tropicale (GERDAT)	1975-79	
Mauritania - 1396-MAU Irrigation Engineering Project	PR Annex III	A. Study of manpower and educational requirements needed for the efficient implementation of irrigation projects. B. Study of the impact of irrigated development on health conditions.	1.1	1.3	A. 0.052 B. 0.03	SCET International Consulting Firm	1974-76	
Morocco - Sebou II Development		Project provides for consulting services to assist Regional Agricultural Development Office (ORMVAG) in organizing a sugarcane division to undertake research, extension, and training, and also for studies on pollution control, flood protection, and schistosomiasis control. It also provides for 42 man-months of overseas fellowship for ORMVAG, MARA, and SUNACAS staff for observations on sugarcane research, processing, and extension services in a number of sugarcane producing countries.	32.0	33.7	1.5			
Sudan - 1401-SU Agricultural Development for Southern Sudan	368a-SU Schedule 6	Livestock marketing surveys - (1) provision of market outlet for cattle; (2) increased cash incomes of nomadic cattle owners; (3) expanded supplies of meat in the provincial capitals; (4) collection of data for the development of an expanded marketing program.	10.7	12.6	0.3	Project Development Unit of the Ministry of Agriculture	1974-78	
Tanzania - 1335-TA Geita Cotton Project	269a-TA para. 4.15	A. Project Evaluation Unit to improve on base line data, analyze progress of project, evaluate project components, farm management research for planning data. B. Research to improve use of insecticides and fertilizers on cotton and maize - farm trials. C. Soil laboratory.	17.5	23.8	A. 0.26 B. 0.50 C. 0.23	Tanzanian Cotton Authority (TCA)	1974-81	
Tanzania - 1412-TA Cashewnut Development		Research on improved individual tree care, fertilizer and insecticide; use and intercropping of cashew with food crops, vegetative propagation, spacing and pruning trials.	4.0	7.26	N.A.	Miwara Research and Training Institute		
Thailand - 1201-TH Chao Phya Irrigation Improvement Project	24a-TH Annex 10	1. Cost recovery study to propose levels of water changes and tax collection procedures. 2. Seed selection and multiplication. 3. Mechanical land preparation techniques. 4. Crop and land management for different varieties of crops.	5.5	10.6	1.0	Regional Research Center Royal Irrigation Department	1974-78	
Upper Volta - 1359a-UV Agricultural Development Project	297a-UV para. 4.13	Adaptive Research Center to determine (1) variety trials, fertilization, insect control rotation; (2) multiplication of seeds.	8.0	10.2	0.83	1. Institut de Recherche Agronomique Tropicales et des cultures Vivrieres (IRAT). 2. Institut de Recherches pour les Huiles et Oleagineux (IRHO). 3. Institut de Recherches du Cotton et des Textiles Exotiques (IRCT).	1975-79	

Country PR Report No. Project Title	Report Reference /1	Research Components	Financing: Bank Loan IDA Credit	Financing: Total Project Amount (US$ million)	Financing: Amount of Research Component	Consultants Research Institutions/Agencies Responsible	Start Completion Date	Classification
II. EDUCATION								
Mauritania - 1322-MAU Education Project	255a-MAU Summary & Conclusions para. iii	Koranic School experimental study to ascertain whether modest amount of support through simple instructional materials can materially increase the literacy and numeracy achieved by this instruction.	3.5	4.8	0.34	National Pedagogical Center Project Unit, Ministry of Planning	1974-77	
III. POPULATION								
Egypt - 1305a-UAR Population Study	PR Annex III	Study of family planning acceptance and evaluation, experimental home-visiting program for family planning motivation, study on improved maintenance of health facilities.	5.0	10.3	0.23	Egyptian Institutions	1974-77	
IV. PUBLIC UTILITIES								
Bolivia - 1228a-BO Third Power Project	190a-BO para. 4.02	Power sector studies of the present and future availability of prices and consumption of energy by sources.	6.0	7.1	0.1	Empresa Nacional de Electricidad Direccion Nacional de Electricidad	1974-76	
Brazil - 1375-BR Minas Gerias Water Supply and Sewerage Project	PR Annex III	Socio-economic study of the impact of water charges in Minas Gerias. Analysis of water usage habits of consumers to determine the income elasticity of demand to serve as basis for revising the state water and sewerage structure.	36.0	93.0	1.0 (local financing)	State Water Company of Minas Gerias (COMAG)	1974-[illegible]	
Ecuador - 1474a-EC Water Supply Project	PR para. 23	Water demand and system improvement study of project area. Ground water and desalination studies.	23.2	38.3	0.6	Empresa Municipal de Aguas Potable do Guayaquil (EMAP)	1974-77	
Malawi - 1306-MAI Second Power Project	PR Annex III	Study of the adequacy of ESCOM /2 tariff structure to reflect power consumption patterns.	7.5	14.3	0.032	N.A.	1974-75	
Tunisia - 1417a-TUN Third Water Supply Project	369a-TUN para. 5.01	Study of the economic cost of distributing potable waters which contain different levels of salinity.	23.0	42.6	0.69	Société Nationale d'exploitation et de distribution des Eaux	1974-79	
			355.7	647.5	11.1 /3			

/1 Appraisal report, when number shown; otherwise President's report (PR).
/2 ESCOM = Electricity Supply Commission of Malawi.
/3 Excluding five projects for which there are no available estimates.

Note: Total number of Loans/Credits 174

Number of Loans and Credits with some research component 25

January 30, 1975

Annex 6

Co-financing

Definitions:

(a) Joint Financing: Another institution contributes money which is channelled to the project via the Bank, e.g. ICP RPO 268) and labor substitution (RPO 226); or vice versa, if the Bank contributes to the research project via another donor institution (no examples to date).

(b) Parallel Financing: Another institution contributes money or other resources directly to the institution executing the research project, e.g. CAMS (RPO 307).

(c) Executor Financing: The institution executing the research contributes resources (money, labor, data processing) without being fully compensated by the Bank or other identified donors, e.g. SUDENE in Northeast Brazil (RPO 273)

Caution: Information not yet verified with project supervisors

Annex 6

Project Title	Co-financier	Estimated Amount ($ million)	Period	Type	Comments
Agricultural Sector in Mexico (RPO 216)	FAO, Ford Foundation Secretaria de la Presidencia	N.A.	FY75	Executor	
Industrial Capacity Utilization in Selected Latin American Countries (RPO 225)	Applicable but no date	N.A.	FY74-75	Executor	Other donors financing, Boston Univ. Center for Latin American Studies
Substitution of Labor and Equipment in Civil Works (RPO 226)	US Germany Japan UK Canada Nordic Countries	0.4 0.4 0.2 0.4 0.2 0.3	FY74-75	Joint	
Highway Design Study, Phase II (RPO 227)	UNDP GOI (tentative) CIDA (tentative) Govt. of Brazil	2.0 0.6 1.7 5.9	FY77-78	Parallel & Executor	
Ethiopia Feeder Road Study (RPO 271)	IDA Credit No. 416-ET	N.A.	FY75	Executor	
Rural Development in Northeast Brazil (RPO 273)	SUDENE	0.35	FY75	Executor	
Financing of Small Scale Industry (RPO 277)	Swedish International Development Agency	0.035	FY74	Joint	
Urban Income Distribution in Latin America (RPO 285)	ECIEL	0.206	1974-75	Executor	
Population Growth and Rural Poverty (RPO 302)	Population Council ODM	0.116 0.058	FY74-77 FY75-77	Parallel	

Project Title	Co-financier	Estimated Amount ($ million)	Period	Type	Comments
CAMS (RPO 307)	Asia Foundation	0.088			
	IDRC	0.011			
	USAID	0.030			
	Ford	0.051	FY74-75	Parallel	Includes core support to CAMS
	Japan	0.020			
	Philippines	0.003			
	Consortium Grant	0.400			
Promotion of Non-traditional Exports (RPO 310)	ECLA	0.117	FY75	Executor	Includes papers written by ECLA staff
Reduction of Waste Water (RPO 312)	IRC	0.003	FY75	Executor	
Urban Traffic Restraint, Singapore (RPO 320)	UNEP	0.006	FY75	Joint	
Raising the Productivity of Small Farms (RPO 322)	FAO	N.A.	FY75-76	Executor	
Agricultural Commodity Projections (RPO 323)	Ford Foundation	0.090	FY75	Parallel	
International Comparison Project (RPO 268)	Ford Foundation	0.080	1971-73	Parallel	
	USAID	0.163	1971-75	Joint	Parallel before FY75
	NORAD	0.011	FY74	Joint	
	DANIDA	0.010	FY74	Joint	
	Netherlands	0.060	FY75-78	Joint	Also to UN Trust Fund
	Germany	0.080	FY75-78	Joint	Part to be used for technical assistance from DIfW
	UK	0.102	FY75-77	Parallel	Value of 36 man-months of technical assistance, including salaries, travel and expenses.

Project Title	Co-financier	Estimated Amount ($ million)	Period	Type	Comments
International Comparison Project (RPO 268)	EEC	0.052	FY75-76	Parallel	Value of 24 man-months of technical assistance, including salaries, travel and expenses
	France	0.009	FY75-76	Parallel	Value of 6 man-months of technical assistance; salaries only
	Hungary	0.009	FY75	Parallel	Value of technical assistance
	UNSO	0.116 per year, ongoing		Executor	Mostly salaries

February 3, 1975

Annex 7

Policy/Issues Papers Related to External Research

Submitted to Board

Date Submitted	Title	Paper No.	Research RPO No.	Title of Research Project
July 1973	Promotion of Domestic Construction Industries	PO6G74	231	Promotion of Road Construction Industry in Developing Countries
May 1974	Land Reform	PO3A74	280	Land Reform in Latin America
May 1974	Fertilizer Production	IO8I74	224	Programming in the Manufacturing Sector
July 1974	Comparative Analysis of Cocoa Production	PO7A74	281	Comparative Analysis of Resource Allocation in Cocoa Production
Sept. 1974	Lending for Village Electrification	PO2P74	238	Analysis of Problems and Issues in Village Electrification
Oct. 1974	Education Sector Policy Paper	PO1E75	244	Student Loan Schemes
			246	Cost Effectiveness of Alternative Learning Technologies in Industrial Training
			251	Survey of Non-formal Rural Education
Dec. 1974	Urban Transport	PO2U74	212	Reappraisal of Credits for Financing Farm Mechanization in Pakistan
			213	Evaluation of Alternative Methods for Specifying Agricultural Sector Development Strategies: Portugal and Brazil
			214	Agriculture Mechanization Study in India
			215	Agriculture Research and Productivity Changes

Date Submitted	Title	Paper No.	Research RPO No.	Title of Research Project
Dec. 1974	Urban Transport	PO2U74	218	Rural Development in Africa
			275	Rural and Urban Public Works
			289	Development Stretegies for Small Holder Agriculture in Yugoslavia
			293	Evaluation of Lilongwe Land Development Program

Reviewed by PRC but not sent to Board

Date Completed	Title	Paper No.	Research RPO No.	Title of Research Project
March 1974	Non-Formal Education	I03E74	251	Survey of Non-Formal Rural Education
Sept. 1974	Economic Analysis of Projects	I01G74	208	Project Appraisal and Shadow Prices
Oct. 1974	Economic Evaluation of Public Utility Projects	P03P74	239	Pricing and Investment in Electricity Supply
Oct. 1974	Highway Design Standards Study	I08G75	227	Highway Design Study, Phase II
Dec. 1974	Urban Transport Policy Paper	P02U74	234	Urban Transport and the Automobile

Note: These are personal guesses; yet to be checked with authors of policy/issues papers.

January 31, 1975

LIST OF RESEARCH PROJECTS

RPO No.	Project Title
201	Development Strategies in Semi-Industrial Countries (includes Korea: Price Incentives)
202	Country Programming Study: Chile
203	Patterns of Demand and Savings in the Development Process
204	Study in Multi-Level Programming: Ivory Coast
205	Cross-Section Analysis of Development Process
206	Short-run and Long-run Influences Upon Income Distribution
207	International Model
208	Project Appraisal and Shadow Prices
209	Size Distribution of Income
210	Survey of Economy-wide Planning Models
211	Prospects for Jute and Competition from Synthetics
212	Reappraisal of Credits for Financing Farm Mechanization in Pakistan
213	Evaluation of Alternative Methods for Specifying Agricultural Sector Development Strategies: Portugal & Brazil
214	Agriculture Mechanization Study in India
215	Agriculture Research and Productivity Changes
216	Agricultural Sector in Mexico
217	Livestock Simulation Model
218	Rural Development in Africa
219	Expansion in Manufacturing for Exports in Developing Countries
220	Industrialization and Trade Policies for the 1970's
221	Export Promotion and Preferences: India
222	Economics of Scale and Tariff Levels
223	Scope for Capital-Labor Substitution in the Mechanical Engineering Industry
224	Programming in the Manufacturing Sector
225	Industrial Capacity Utilization in Selected Latin American Countries

RPO No.	Project Title
226	Substitution of Labor and Equipment in Civil Works
227	Highway Design Study, Phase II
228	Measurement of Road Width/Vehicle Speed Relationship
229	Yemen Arab Republic Feeder Road Study
230	Impact on Port Congestion of Ship Rescheduling
231	Promotion of Road Construction Industry in Developing Countries
232	Compilation of Highway Design Standards
233	Railway Traffic Costing Study
234	Urban Transport and the Automobile
235	Criteria for Choice between Electricity and Diesel Traction in Project Evaluation
236	Property Values and Water Supply
237	Village Water Supply
238	Analysis of Problems and Issues in Village Electrification
239	Pricing and Investment in Electricity Supply
240	Economic Models of Internal Migration
241	The Urban Data Needs of the IBRD
242	Professional Structure in Southeast Asia
243	Labor Market in Malaysia
244	Student Loan Schemes
245	Labor Force Participation - Income and Unemployment (BOMBAY LABOUR MARKET STUDY)
246	Cost Effectiveness of Alternative Learning Technologies in Industrial Training
247	Costa Rica Unemployment Survey
248	Economic Issues of Health
249	International Hotel Comparison
250	Mechanization in India: Its Extent and Effect on Hired Labor
251	Survey of Non-formal Rural Education

RPO No.	Project Title
252	Study of Underutilization of Manpower in Northeast Brazil
253	Computer Simulation Models for Use in Agriculture Appraisal Work
254	Employment and Capital-Labor Substitution
255	The Growth Potential of Iron Ore Export from Developing Countrie
256	Expansion of Sugar Production in Developing Countries
257	Outlook for World Import Demand for Bauxite
258	Trade Prospects for Tropical Hardwood in the Asia-Pacific Region
259	The Future Prospects of Hard Fibers
260	Case Study of Alternative Methods of Project Appraisal
261	Analysis of Farmers' Response to new Rice Varieties in E.Pakista
262	Cost Patterns of Official Family Planning
263	Demographic Projection and Analysis
264	Family Planning Programs - Evaluation of Results
265	Development Strategies and Employment Considerations
266	Bank Lending and Employment
267	Standards of Reliability of Urban Electricity Supply
268	International Comparison Project
269	Growth and Income Distribution in Brazil
270	Urban Public Financing and Administration
271	Ethiopia Feeder Road Study
272	Study of Irrigation Water Charges
273	Rural Development in Northeast Brazil
274	Analysis of Income and Consumption (ECIEL)
275	Rural and Urban Public Works
276	Pricing and Investment in Telecommunications
277	Financing of Small Scale Industry
278	Project Evaluation Methodology: Education Attainments
279	Economic Development of East and Southeast Asia

RPO No.	Project Title
280	Land Reform in Latin America
281	Comparative Analysis of Resource Allocation in Cocoa Production
282	Seminar on Inflation and Commodity Prices
283	Evaluation of Latin American Data on Income Distribution
284	Growth Employment and Size Distribution of Income
285	Urban Income Distribution in Latin America
286	Prototype Models for Country Analysis
287	Industrial Policies and Economic Integration in West Africa
288	Agriculture Sector in Indonesia
289	Development Strategies for Small Holder Agriculture in Yugoslavia
290	Labor Market in a Rapidly Growing Economy
291	Benefits of Schooling for Workers
292	Conferences
293	Evaluation of Lilongwe Land Development Program
294	Employment and Income Distribution in Malaysia
295	Industrial Capacity Utilization in Malaysia
296	Distributive Impact of Public Expenditures
297	Urban and Regional Subsystems in West Malaysia
298	Urban Land Use Policies: Taxation and Control
299	Economic Aspects of Household Fertility Behavior and Labor Supply in Northeast Brazil
301	Country Concentration
302	Population Growth and Rural Poverty
303	Maximizing Usefulness of Household Surveys
304	Rural Saving and Investment
305	Patterns of Industrial Development
306	Employment Models and Projections
307	CAMS

RPO No.	Project Title
308	Evaluation of Asian Data on Income Distribution
309	World Commodity Models
310	Promotion of non-Traditional Exports
311	Public Utility Pricing and Investment
312	Reduction in Waste Water
313	Economics of Containerization
314	Malagasy Feeder Road
315	Effects of Health and Nutrition Standards on Worker Productivity
316	Urbanization Standards for Site and Services Projects
317	The Analytics of Change in Rural Communities
318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal
319	Economic Development and Educational Reform
320	Urban Traffic Restraint (Singapore)
321	Foodgrain Production in Asia
322	Raising the Productivity of Small Farms
323	Agricultural Commodity Projections

Annex 9

Notes on Table 1 - Category "Other"

RPO #		FY73	FY74	FY75
217	Livestock Simulation Model	0.4		
222	Economics of Scale and Tariff Levels	4.2		
235	Criteria for Choice between Electricity and Diesel Traction in Project Evaluation	7.5		
249	International Hotel Comparison	10.5		
292	Conferences		13.9	50.0
301	Country Concentration		7.0	5.0
		22.6	20.9	55.0

Excludes the following projects already in Table 1:

202	Country Programming Study: Chile	23.9
233	Railway Traffic Costing Study	8.7
242	Professional Structure in Southeast Asia	12.0
274	Analysis of Income and Consumption (ECIEL)	65.0
		109.6

January 31, 1975

Annex 9

Summary of Table 3

	Asia	Africa	Latin America	EMENA	All Regions[1]
1. No. of project/country entries	35	59	48	15	157
2. No. of (1) with participating institutions	14	37	35	7	93
3. No. of LDC's	16	10	13	7	46
4. No. of projects (eliminate intra-region double counting in (1))	18	34	26	13	61
5. Projects with local/regional participation (no intra-regional double counting)	10	21	18	6	42
5/4	.56	.62	.69	.46	0.69

1/ Not necessarily equal to total of regions because of inter-regional duplications.

January 20, 1975

Annex 9

Notes on Table 4

RPO No.	Project Title	Total Disb. ('000)	Report	Start/ Finish
205	Cross-Section Analysis of Development Process	77.5	1. H. B. Chenery and N. Carter, "Foreign Assistance and Development Performance 1960-1970". American Economic Review, May 1973. World Bank Reprint No. 9. 2. H. B. Chenery and M. Syrquin, "Patterns of Development 1950-1970", Oxford University Press (forthcoming), 1975. 3. N. Carter, "A Handbook of Expected Values of Structural Characteristics", April 1974. Bank Staff Working Paper No. 154.	71-74
211	Prospects for Jute and Competition from Synthetics	17.2	1. E. Grilli and A. Morrison, "Jute and the Synthetics", January 1974. Bank Staff Working Paper No. 171.	72-74
215	Agriculture Research and Productivity Changes	30.7	1. Y. Kislev and R. Evenson, "Agricultural Research and Productivity", Yale University Press, 1975.	71-73
219	Expansion in Manufacturing for Exports in Developing Countries	4.5	1. T. Ozawa and Y. Chang, "Expanding Employment Opportunities in LDC Export Manufacturing Industry: An Analysis of the Offshore Activities of the Japanese Electronics Industry", March 1973 (unpublished 2. T. Ozawa, "Labor Resource Oriented Migration of Japanese Industries to Taiwan, Singapore and South Korea", August 1972. Bank Staff Working Paper No. 134.	71-73
220	Industrialization and Trade Policies for the 1970's	18.2	1. H. Hughes, "Trade and Industrialization Policies: The Political Economy of the Second Best", February 1973. Bank Staff Working Paper No. 143. 2. H. Hughes, "Prospects for Partnership - Industrialization and Trade Policies in the 1970's", The Johns Hopkins University Press, 1973.	72-73
221	Export Promotion and Preferences in India	21.9	1. D. Wall, "The Role of Exports in India's Development Program", 1972 (unpublished). 2. D. Wall, "Export Development and Promotion Policies", 1972 (unpublished). 3. D. Wall, "The Impact of the Generalized Scheme of Preferences on India's Exports", 1973 (unpublished). 4. D. Wall, "Export Policy", 1973 (unpublished).	72-73
230	Impact on Port Congestion of Ship Rescheduling	4.8	1. Asian Institute of Technology, "Application of State Dependent Queuing Models for Analyzing Ship Arrival Rates at Ports", November 1972 (unpublished).	71-72
231	Promotion of Construction Industry	99.2	1. J. de Wilde & Associates, "A Framework for the Promotion of Construction Industries in the Developing Countries", November 1973. Bank Staff Working Paper No. 168.	71-73
234	Urban Transport and the Automobile	23.0	1. W. Owen, I. Ozusta, I. Bradfield, "Automobile and Cities - Strategies for Developing Countries", September 1973. Bank Staff Working Paper No. 162.	72-73
236	Property Values and Water Supply Benefits	35.0	1. R. Bahl, S. Coellen and J. Warford, "Impact of Water Supply and Sewerage Investment on Property Values", September 1973 (unpublished). 2. R. Bahl, S. Coellen and J. Warford, "Estimation of the Economic Benefits of Water Supply and Sewerage Projects", October 1973 (unpublished).	71-73
237	Village Water Supply	21.0	1. R. Saunders and J. Warford, "Village Water Supply and Sanitation in LDC's", March 1974, Public Utilities Report No. RES2. 2. R. J. Saunders, "Village Water Supply in Developing Countries: Problems and Policies, March 1973 (unpublished).	71-73
240	Economic Models of Internal Migration	14.4	1. P. Brigg, "Some Economic Interpretation of Case Studies of Urban Migration in Developing Countries", March 1973. Bank Staff Working Paper No. 151.	71-73
246	Cost Effectiveness of Alternative Learning Technologies in Industrial Training	38.3	1. M. Zymelman, with the cooperation of M. Horowitz, E. Hernstadt and A. Woodruff, "Cost Effectiveness of Alternative Learning Technologies in Industrial Training - A Study of In Plant Training and Vocational Schools", December 1973. Bank Staff Working Paper No. 169.	72-74
248	Economic Issues of Health	6.7	1. P. Newman, "A conceptual Framework for the Planning of Medicine in Developing Countries", May 1973. Bank Staff Working Paper No. 153.	72-73
250	Mechanization in India - Its Extent and Effect on Hired Labor	10.0	1. B. Lockwood, "Notes on Farm Mechanization and the New Technology in Indian Agriculture", April 1972 (unpublished). 2. B. Lockwood, "Patterns of Investment in Farm Machinery and Equipment in Indian Agriculture", January 1973 (unpublished).	71-73
251	Survey of Non-Formal Rural Education	250.0	1. P. Coombs and M. Ahmed, "Attacking Rural Poverty: How Non-Formal Education can Help", The Johns Hopkins University Press, 1974.	71-73
254	Employment and Capital Labor Substitution	89.9	1. Y. Mundlak, "Distortion in the Factor Markets and the Short Run Equilibrium", "Functional Forms of Production Functions", "Estimation of Production Functions", April 1973 (unpublished) 2. G. Ranis, "Industrial Sector Labor Absorption", Economic Development and Cultural Change, Vol. 21, No. 3, April 1973 (World Bank Reprint Series: No. 6). 3. S. K. Singh, "Evaluation of Employment Prospects in LDC's", October 1970. "Aggregate Production Function Causes of Growth and Measures of Dynamic Efficiency", January 1973. Bank Staff Working Paper No. 138.	72-73
281	Comparative Analysis of Resource Allocation in Cocoa Production	21.8	1. P. Yeung, "Comparative Advantage in Cocoa Production: A Methodological Annex", Forthcoming in Bank's Occasional Paper series.	73-74
		784.1		

January 31, 1975

RESEARCH - GEN

Research Committee Members January 31, 1975

D. C. Rao, VPD

Minutes of Research Committee Meeting
January 30, 1975

Present: B. Balassa, H. B. Chenery, H. Hughes, A. Karaosmanoglu, E. Lerdau, H. Schulmann, W. Thalwitz, H. van der Tak, H. Vergin, M. Yudelman

Absent: B. de Vries, B. B. King, J. Waelbroeck

The Research Committee met on January 30, from 3:00 p.m. to 4:30 p.m.. The following decisions were reached:

1. Research Proposal on Buffer Stocks. The proposal from Mr. Reutlinger (ECD) was approved. The proposer should be advised that he should (possibly in subsequent phases of the research) attempt to make the analysis sufficiently comprehensive for operational application in specific countries. For example, he should try to take account of the response of supply to price stabilization and measures relating to the provision of inputs.

2. Annual Report Follow-up. It was agreed to experiment with a couple of overviews along the lines of Mr. King's note. The authors of the overviews should establish contact with Bank users at an early stage and attempt to be specific on desirable lines of research. The Research Committee should then attempt to induce research proposals in priority areas.

3. Budgetting. The Committee supports the suggestion that there be (1) a total authorization and (2) a current FY authorization for each new research project. The Committee would not expect to be consulted on overruns not exceeding 10% of the original total authorization or $10,000, whichever is the less. However, this agreement was subject to the continuation of the present practice of phasing research projects, and reviewing the progress of the project between phases.

4. Next Meetings. The meetings to consider research proposals for FY76 should be scheduled for mid April and mid May.

5. <u>Completion Reports</u>. It was noted that not all completion reports were sufficiently self critical. An attempt should be made to solicit objective user comments on completed research projects , initially by circulating completion reports to those who signed Part II of the research proposal.

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
B. B. King, Lerdau, Schulmann, Thalwitz,
van der Tak, Vergin, Waelbroeck, Yudelman
Mrs. Hughes

DCRao:gm

RESEARCH - GEN.

Mr. G.B.H. Renger, Chief, LCPDF

January 27, 1975

Jerzy Z. Mirski, LCPDF

Annual Report on Bank Research - Ref: Mr. Barend A. de Vries' Memorandum of January 13, 1975

In response to Mr. de Vries' request for new research suggestions, I suggest that the following research projects be undertaken:

"Pricing of Development Funds in LDCs"

Purpose

1. To assist LDCs in the formulation of their policy and to provide a stronger basis for operational policy decisions of the Bank Group.

Methodology

2. The project should consist of:

(a) review of the available material prepared by the Bank Group and IMF staff and relevant policy determinations;

(b) empirical review of policies and practices of selected LDCs;

(c) critical analysis of (a) and (b); and

(d) formulation of conclusions and appropriate guidelines for operational policy of the Bank Group.

Proposed Coverage

3. The project should cover and attempt to resolve the following problems:

(a) Single versus multiple interest rates for development funds.

(b) Market versus subsidized or special rates.

(c) Relending rates versus costs of borrowed funds;

(d) Cost of direct borrowing (large projects) versus intermediary credit (medium and small enterprises).

(e) Interest rates in development of priority sectors of the economy.

(f) Market rate versus real rate.

(g) Fixed rate versus indexed rate (or adjustable principal).

Note: Inasmuch as the suggested coverage is rather extensive, the research studies could be divided according to specific subjects but, in view of their interrelations, their results should be analyzed concurrently in order to arrive at operational conclusions.

JZMirski:gl

Research
cc. General Dev. Policy

Mr. Robert S. McNamara, President January 24, 1975

Hollis B. Chenery, VP-DP Signed Hollis B. Chenery

Studies for the Development Committee

You have asked me to take responsibility for the preparation of three studies to be submitted to the Development Committee, with appropriate collaboration. The terms of reference, timing and responsibility for drafting these studies are outlined below.

1. Capital Requirements of Developing Countries

The capital requirements of the developing countries can only be determined in the context of a broader analysis that covers the growth prospects and policies of the OECD and OPEC countries, as well as the policies of the LDCs themselves. We propose to prepare this analysis in two parts:

(i) A concise report to the Development Committee on the model of last year's Interim Report, focussing on the capital requirements to sustain reasonable growth.

(ii) A more complete analysis of Prospects for the Developing Countries, including factors determining trade and capital flows from OECD and OPEC and their relation to LDC growth.

The latter study would provide a background for the June revision of the Bank's lending program and your Governors' speech, as well as for the report to the Development Committee.

An outline of the report to the Development Committee is attached at Annex A. It will be prepared by the Economic Analysis and Projections Department. A draft will be submitted to you by the first week in April.

The second study will provide a complete revision of "Prospects for the Developing Countries" (R477), giving a less detailed treatment of oil but more attention to the effects of inflation and recession in the OECD and the structural changes required in the world economy. After our experience last year in preparing R477 and my Foreign Affairs article, I think it will be possible to present a simpler and more readable analysis. A draft would be submitted to you in the latter part of May, with the timing related to the June Board paper on the Budget.

The critical element in the timing of these two papers is the analytical work on each country in the CPP cycle, which is only completed in May. The later the date for the Prospects paper, the more nearly consistent it can be with the country detail coming from the Regions. In the future, a more logical timing would be to complete this analysis in July (or later) each year and to prepare the annual revision of the Bank program in the Fall. So long as CPP projections, world-wide analysis and Bank Programs are prepared simultaneously, the consistency among them can only be approximate.

2. Study of the Third Window

Stern and I have discussed with Peter Cargill the scope of the paper and the preparatory work needed. A proposed outline is attached at Annex B. Frank Vibert of Policy Planning and Joe Wood of P and B will prepare a draft. Since most of the background analysis is already available, a draft can be submitted to you by the end of February.

3. Special Trust Funds

This study is a joint responsibility with the IMF. We are still discussing the approach with them and will have a proposal to you by Monday evening, as you requested.

HBChenery:di

ANNEX A

Outline: Long-term capital requirements of the developing countries, 1974-1980

I. Introduction

II. Background Assumptions:

(will specify the external factors which determine the outlook for the developing countries' growth and trade)

a) growth and inflation in industrial countries
b) energy outlook, oil price prospects
c) prices of other primary commodities, world trade

III. Supply of External Capital:

(will present the presently estimated flows of capital by type, donor and recipient groups, along lines of case B in R477)

a) OPEC: balance of payments prospects for the OPEC countries and reserve accumulation
b) OECD
c) projected supply of private and public capital

IV. Prospects for the Developing Countries:

(will provide resultant growth on the basis of the assumptions presented in II and III, and estimate additional capital requirements for higher target growth rates)

a) growth prospects by country groups
b) alternative growth patterns and associated capital requirements

V. Characteristics of Projected Capital Flows:

(will briefly survey the magnitudes of projected capital flows in terms of their burdens on capital exporters)

a) by categories: concessional, at market terms, at intermediate terms
b) comparisons with GDP and GDY in capital exporting countries
c) the purchasing power of projected capital flows
d) implications of the estimated net inflow requirements for gross disbursements and for commitments

Schedule: Draft to be ready for submission to the President by April 4, 1975.

Submission to Böard on April 18, 1975.

Board discussion on May 8, 1975.

The document will not be more than 20 pages, including Mr. McNamara's cover memorandum. Annexes may be provided for the materials in Chapters II, IIIa and IV, which would not exceed 5 pages each.

Third Window

A. Rationale for new mechanism and for proposed size of initial operation.

B. Financial Aspects

1. Subsidy fund - size, sources.
2. Impact on Bank reserve position of additional lending.
3. Additional borrowing requirement.
4. Direct borrowing from governments at low rates.
5. Effect on Bank and IDA lending programs.

C. Operational Features

1. Terms of lending; trade-off between interest spread, grace and maturity per subsidy dollar.
2. Type of lending - proportion of quick disbursing loans.
3. Eligibility criteria.
4. Management structure.
5. Criteria for starting operations.

RESEARCH - GEN
cc: AGRICULTURE

Mr. L.E. Christoffersen

January 22, 1975

D. Turnham DT

Annual Report on Bank Research

1. You asked for a note on the Annual Report on Bank Research to serve as a basis for general discussion and because the paper will be [1] discussed along with the Rural Development Policy Paper on February 4th.

2. The categorization of research projects provided in the Report combines agriculture with rural development, while submerging in other groups non-agricultural projects substantially oriented towards the rural poor. Table 1 shows the results of a reclassification exercise. According to these estimates, rural development accounted for $390 million or 23% of total outlay in FY73, $445 million or 25% in FY74 and is projected at $345 million in FY75 -- some 16% of the FY75 budget. The indicated sharp decline in RD research, taken at face value, runs contrary to the thrust of the RD Policy Paper, which argues for greater rather than for lesser efforts in this area. However, it is hard to assess from the Annual Report data what is likely to happen in future years. In FY75, a number of new projects are being started up, some of which may not give rise to major expenditures until next year. Thus, the 'Analytics of Rural Change' is one example of a new study that may prove very costly later on. (These aspects could be explored in greater depth with a file on the full program, including the estimated project budgets. It seems that we do not maintain such a file in the Department at present. Probably we ought to have this.)

3. Even allowing for greater expenditures under some of the new studies in FY76 though, it seems likely if we are to rebuild the share of rural development research closer to the 25% level of FY74 that maybe 3 or 4 new and rather substantial research projects would need to be prepared for and accepted by the Research Committee.

Crude classification of the rural development projects themselves is shown in Table 2. Category 1, dealing with studies addressed to small farmers and small scale farming problems, includes the work commissionedunder the ARDS and the North-East Brazil study. Leaving these somewhat broader-scale studies to one side, small farmer research accounted for only 2 studies

---

1 To begin with, were I an ED, I would not be very satisfied with the information provided in the Report, particularly since the data do not take into account the in-house costs associated with the use of Bank manpower and facilities for research. Not only would inclusion of these costs affect the overall perspective of the size of the research program, but in addition, research projects taken individually, vary considerably in their reliance on Bank consultant staff for carrying out the work. All the analysis described below ignores the in-house cost element.

and a total expenditure since FY73 of $68.5 thousands -- which struck me as surprisingly small. The main trend indicated by this classification though is the steady decline in studies about rural infrastructure (roads, water supplies, electrification) relative to the category 'other', which is concerned mainly with treatment of more general issues and tends to be more theoretical in orientation. Finally, one other way of classifying the research focussed on rural development is according to the management of the projects. Table 3 shows details. The main feature is the steady increase in the importance of the DRC, its share of the total rising from 7.4% in FY73 to 46.6% in FY75. 'Other DPS' falls from 51.2% to 29.3% while the share of CPS fell from 40.0% to 24.1% over this period. Although DRC has become more operationally oriented than in the past, nonetheless, in line with the operational emphasis of the Policy Paper, maybe the non-DRC managed share in the total program should be maintained at at least 50%. This too would seem to imply that we seek to fund a number of new projects next fiscal year in the Department and under Mark Leiserson's DPS group.

4. Looking at the list of active projects -- 11 in all -- a wide range of the important issues and concerns in rural development are covered under the research program: e.g., the small farmer, economic infrastructure, savings, population, and rural community studies. In terms of type of project though, it is less clear that the program, taken as a whole fully reflects the operational relevance and applicability to Bank work singled out both by the Policy Paper on rural development and in the Annual Report on research as number one priority. I have listed a number of possible areas for this type of research from which some proposals might be suitable for packaging for introduction in the FY76 research program.

(a) A study of projects and programs of rural development in Asia, with reference to the ARDS. Ditto Latin America. Perhaps a more structured alternative could be to examine major types of rural development project building on the beginnings of the classification developed for the rural development policy paper -- minimum package, area comprehensive, etc., with greater detail on the pros and cons of settlement, credit, irrigation, packages within these headings.

(b) An examination of rural development planning and programming including the relationship to national planning, regional planning, with major emphasis less on technique than on practical application. (Such a project could pay a good deal of attention to alternative organizational and management structures.) The mix of social and economic elements deserves special mention as a sub-issue in planning and project formulation. Are there any short cut methods of appraising the validity of alternative packages? For example, can more be done on estimating the value to the community of various qualities of service -- water, health, power -- relative to differences in the overall level of community income in the rural areas? A related issue concerns the recurrent cost burdens associated with the maintenance and operation of new services or services maintained at higher quality levels. This kind of topic might be suitable for examination by the Fiscal Division of DPS.

(c) Third would be studies involving the development of a typology of small farm systems (involving perhaps some measure of the carrying capacity of a system relative to levels of per capita income as basic ordering principle). Such a typology could sharpen up the focus of our sector work through more precise use of comparative analysis; it might also provide a suitable umbrella for making better use of the great mass of data and information now being thrown up in the course of project preparation and appraisal. With a flow of agricultural and rural development project now about 60 per annum, this extremely valuable and uniquely crosssectional source of data -- in regard to the exploitation of which we truely do have a comparative advantage -- should be much more fully exploited than in the past. (The mix of technical agricultural and economist skills needed for this would make this an ideal focus for CPS research activity. Jim Goering's study of settlement projects is the kind of thing that should be encouraged on a more ambitious scale). Related studies could be focussed on the use of labor in small scale agriculture, and, more generally, on activity and occupational structures in rural communities at various stages of development. These studies would help beef up the size of the program in the area of small farm studies, where, perhaps, we should be doing more.

(d) Another currently missing element is studies to broaden our understanding of the technical and as well economic requirements for stimulating the development of rural industry. The need here is too obvious to need any detailed discussion.

(e) Finally, more work on methods relating to project/program monitoring and evaluation would be highly desirable and operationally relevant. Maybe a bigger effort could be developed out of the Muda River results?

Attachments

cc: Messrs. C. Bruce
M. Leiserson
D. Pickering

Table One

RURAL DEVELOPMENT RESEARCH PROJECTS, FY72-75
- (000) dollars -

RPO		FY73	FY74	FY75
218	ARDS	145.8	12.6	-
250	Indian Mechanization	5.5	-	-
273	Brazil N.E.	28.7	133.0	97.2
280	Land Reform	-	35.9	11.3
289	Smallholder Agriculture -- Yugoslavia	-	27.4	11.1
293	Lilongwe Evaluation	-	21.4	-
304	Savings and Investment	-	-	12.0
217	Analytics of Change	-	-	57.0
233	Small Farm Productivity	-	-	30.0
229	Feeder Roads - Yemen	14.9	29.4	6.6
271	Feeder Roads - Ethiopia	18.5	2.4	-
314	Feeder Roads - Malagasy	-	-	32.0
237	Village Water Supply	18.5	-	-
238	Village Electrification	103.3	81.6	13.0
215	Public Works	52.9	101.2	52.0
302	Population Growth and Rural Poverty	-	-	22.0
	TOTALS	388.1	444.9	344.2
	TOTAL BUDGET	1712.7	1810.3	2131.1
	PERCENTAGE SHARE	22.7	24.6	16.2

Table Two

Categories of Rural Development Research

	FY73	FY74	FY75
	- '000 dollars -		
Farm Oriented			
Studies	174.5	181.5	138.3
Active Projects	2	3	3
Rural Infrastructure	155.2	113.4	51.6
Active Projects	4	3	3
Other Studies	58.4	150.0	154.3
Active Projects	2	3	5

Table Three

Management of Rural Development Research ✓

	FY73	FY74	FY75
	- '000 dollars -		
DRC	28.7	133.0	154.2
Other DPS	198.7	171.1	97.3
CPS	155.2	140.8	79.7
Other	5.5	-	-

RESEARCH GEN

January 22, 1975

Mr. Chenery:

The attached table lists the people who might be invited to the Board discussion of the annual report on research on February 4. The total number of invitees exceeds what I think is the norm for Board meetings; it might be necessary for you to clear this before it goes to the Secretary's Department.

DCR

D. C. Rao

Attachment

DCRao:gm

Annex Table 2

Staff Invited to Board Meeting, February 4

1. Research Committee Members

DPS	Other
H. B. Chenery	B. de Vries*
B. B. King	A. Karaosmanoglu
B. Balassa	E. Lerdau
H. Hughes*	H. Schulmann
J. Waelbroeck	W. Thalwitz
	H. van der Tak
	H. Vergin
	M. Yudelman

2. Priority A

E. Stern	Y. Rovani
J. Duloy	D. Ballantine
R. Gulhati	E. Jaycox/A. Churchill
M. Ahluwalia	

3. Priority B (presenting research topics to Board on March 6)

R. Norton	D. Anderson

4. Priority C

M. Leiserson	C. Bruce
D. Keare	C. Harral

5. Flunkies

M. Hazzah
D. C. Rao

Total 14	14

*Possibly unable to attend.

January 22, 1975

RESEARCH-GEN

Mr. B. B. King, VPD

January 21, 1975

D. S. Ballantine DSB.

Research Financed under Loans and Credits

1. We agree with your compilation of research components of the loans and credits for FY74. Mauritania is in fact the only education project with a distinct research component in FY74 and is described accurately.

2. Your list suggests the following simple classification:

(i) Basic Research (no item reported);

(ii) Applied and adaptive research (application, adaptation and systematic dissemination of research findings);

(iii) Studies and surveys to: (a) broaden and improve the information base for policy analysis and decision-making; and (b) develop capability for the preparation of sector programs and projects;

(iv) Support to the development of local research capacity;

(v) Evaluation.

3. We think that such data collection on a periodic basis is useful as it will permit us to be aware of research activities in other sectors, particularly in rural and urban development.

NE/mms N.E.

RESEARCH-GEN -

Research Committee Members January 20, 1975

B. B. King, VPD Signed B. B. King

Research Committee Meeting - January 30, 1975

I attach a note elaborating some of the points for discussion at the meeting on January 30.

Please note that each section ends with a "Q" (Question).

Attachment

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
Lerdau, Schulmann, Thalwitz, van der Tak,
Vergin, Waelbroeck, Yudelman, Mrs. Hughes
cc: Mr. D. C. Rao

BBKing:gm

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Research Committee Members

DATE: January 20, 1975

FROM: B. B. King, VPD BBK

SUBJECT: Research Committee Meeting - January 30, 1975

I attach a note elaborating some of the points for discussion at the meeting on January 30.

Please note that each section ends with a "Q" (Question).

Attachment

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
Lerdau, Schulmann, Thalwitz, van der Tak,
Vergin, Waelbroeck, Yudelman, Mrs. Hughes

cc: Mr. D. C. Rao

BBKing:gm
January 20, 1975

Further note to the Agenda for January 30, 1975

Item (i) The Annual Report (Follow-up)

(a) Overviews and Bank Comparative Advantage

The present procedure for reviewing research proposals does not provide an adequate basis for judging them in the light of what is going on elsewhere, what might be done in the near future in the Bank (much less elsewhere), what alternatives there might be and so on. In other words, there is no basis for judging the opportunity cost of accepting a good project; "good" being defined as acceptable in respect of methodology and apparent, but rather general, importance of the problem to be investigated. Since personnel and funds are short, opportunity cost may be high.

We have started to commission "overviews" on various subjects which are intended to:

(i) Identify the nature of the problems that we are trying to solve in the real world, i.e. what is it that research - or other activities - is intended to illuminate?

(ii) Identify those lines of research which, on the face of it, are already mining low-grade ore.

(iii) Identify those lines of research which might have a higher payoff and are at least worth exploring.

(iv) Identify which of the lines in (iii) are particularly suitable for the Bank.

This would be the basis for outlining a strategy for Bank or Bank-sponsored research and for possible promotion by the Bank, through persuasion and propaganda of research in other agencies. Such a strategy would act as a guideline to the Research Committee in judging the suitability (as distinct from the technical competence) of proposals.

These overviews will take time and we do not know how successful they will be. In the meantime we think that those who submit proposals should be encouraged to include a mini-overview or similar justification in their proposal. At least they should be made aware that the panel would quiz them in this spirit and would report to the Committee.

Q. Does the Committee agree in general and has it any specific suggestions to offer?

(b) Transmission of research to ultimate user

We believe that, to the extent possible, research projects should focus at the outset on the ultimate user. Consequently, the proposal should include not only an account of what interesting results are expected, but who can be expected to use them and what steps are needed to facilitate this.

Again, we would require a statement of this kind in the proposal and ask the panel to examine the latter and report to the Committee on this aspect.

Q. Does the Committee agree in general and has it any specific suggestions to offer?

(c) Early Warning

The present system of scheduling proposals gives little time for the organization of panels and transmission of their findings to the Committee. Moreover, in difficult or controversial cases, the Committee has little opportunity to reflect on what additional information it should really have to make a decision.

We propose to ask for "preliminary notices" some four to six weeks in advance of the formal proposals themselves. These notices could be confined to a one-page description of the project together with a rough estimate of the total cost, though any other details (e.g. collaborators) could be included, if known. The Committee would have the opportunity of giving a preliminary reaction and guidance to the panel on the questions it would be particularly interested in. The panel, in turn, could be selected less hurriedly, could make early informal contact and should be much less pressed for time.

A. (1) Does the Committee agree with this idea?

(2) If so, does it think circulation for comment would be sufficient or would a short meeting be preferred?

(3) Does four or six weeks seem about right?

Item (ii) Budgetting Questions

At present we have a rather loose idea of the amounts we are committing ourselves to in future years. There have been several cases of large overruns. Some managers keep a very tight control and others do not.

We propose that for each project there be (1) a <u>total</u> authorization and (2) a current FY authorization, similar to the practice of various governments, including the US. Any overrun in total authorization would, in principle, be submitted to the Committee for approval, but in practice this authority would be delegated for overruns not exceeding 10% of the original authorization or $10,000, whichever was the less.

Q. (1) Does the Committee agree in principle?

(2) Does it agree to the delegated limits?

<u>Item (iii) Timing of meetings</u>

Q. Does the Committee agree that the next two should be on or about:

(a) March 5

(b) May 15?

Research

January 20, 1975

The following letter was sent to Chiefs of the following missions:

Afghanistan, Bangladesh, Colombia, Ethiopia, India,
Iran, Ivory Coast, Kenya, Nepal, Nigeria

Dear

I enclose a copy of the annual report on research just sent to the Board and the "Abstracts" booklet. In the report (page 4) there is a short section on collaboration and it is about this that I am soliciting your help. I have been assured by Dave Gordon in Indonesia that he would not regard this as just another imposition from Washington and I hope this is true.

What we would like to have is an appreciation of the work of research institutions in your area, with which we might collaborate in the future: their particular strengths, weaknesses, openness to collaboration etc. There is a list of currently participating institutions in Appendix Table 3 in the annual report. We do not ask you to make a production of this, but only to make it a by-product of what you may be doing anyway, as and when you do it. Copies of any memoranda etc. which have a bearing on the matter would be welcome and would cost very little at the margin. I should emphasize that we are not soliciting research proposals and would not like to have that impression get around.

Yours sincerely,

Signed B. B. King
Benjamin B. King
Research Adviser
Development Policy

Attachments

BBKing:gm

✓RESEARCH-GEN
CC: ASIA-

January 20, 1975

Dr. Ramesh Chander
Chief Statistician
Department of Statistics
Government of Malaysia
Kuala Lumpur 10-01
Malaysia

Dear Ramesh:

I had a most enjoyable, all-too-brief, but I hope ultimately fruitful visit to Kuala Lumpur. I now understand why such a disproportionate share (in per capita terms) of World Bank research resources goes to work on Malaysian problems.

I am impressed with the research promise of the data you have been, and are currently, collecting and hope that we can find a mutually agreeable way of assisting you with its processing and analysis.

As I see it, there are three separate pieces of work you are doing that are of particular interest to our own work on population. Other surveys, like the ODA - CAMS labor force survey and work on nutrition, have other interest for us but I did not have the time to learn much about these. The most ambitious and exciting is the U.S. AID-financed collaboration with Rand. Since in many ways this parallels and precedes some work of our own elsewhere, we shall watch its progress with interest but there is obviously nothing we could or need do to help it along.

We might be able to be of more use to you in either of the other two studies, which are, of course, interrelated. The first is the analysis of the income and expenditure data in relation to demographic factors. We are interested in this mostly for the prospect it offers of relating family size and age composition to the propensity to save, since the relationship between demographic factors and savings is a subject on which there has been much theorizing but very little empirical research. It should also be possible to estimate the marginal expenditures associated with children at different ages and so to analyze the costs of children for families at different income levels. Later, when the World Fertility Survey data are available, we should be able to compare these with the economic benefits. Since some fertility questions were asked during the last round of the income and expenditure survey, it should also be possible to analyze a variety of other relationships, such as that between income and fertility. Dorothy Fernandez suggested that we might be able to hasten significantly the availability of the data if we could finance its processing to the tune of US $4,000-5,000 to ease the pressures within the Statistical Office. If we could then find a way to participate in its analysis, we should be interested to provide this money, if you would like us to. Montek Ahluwalia is also very interested in the Income and Expenditure data; our own work will be in collaboration with his Division.

In our second conversation, you suggested that you might prefer our assistance in the provision of a standard package of computer programs such as SPSS. Perhaps, however, it is a mistake to view these as alternatives; such a package would be for analytical purposes, whereas I understand Dorothy's request to be for the preparation of a data tape. We ourselves are currently making considerable use of SPSS: if it is possible to adapt this for use on an ICL computer and we could be of assistance, we would be happy to provide it later, if we could collaborate in the analysis. To let us start investigating this, could you let us know the capacity (core) of your computer and its compilers?

Alternatively, it might be sensible for somebody from your office to come and work jointly with us here. In this regard, I agree with you that in principle any involvement in analyzing this data ought preferably tobbe collaborative and that ideally should take place in Malaysia. This would have the beneficial long run effect of increasing the stock of Malaysian research skills and experience, quite apart from the value of the research itself. But, from our point of view, it makes sense to do this only if it is possible to be more successful than hitherto in attracting the interest of Malaysian economists in such a collaboration, either with our own staff members or with consultants. Otherwise, quite frankly, it would be simpler and cheaper for us to purchase the tape and work on it here. But it is one of the aims of this Division to try to build up interest on population questions among economists in developing countries, and if there were to be an opportunity towwork with local economists, we should prefer to do so.

The second area of obvious interest to us is the World Fertility Survey. When completed, you will have a remarkable set of data, and we should like to be of any assistance we can be in its analysis. Again, I hope it will be possible to establish some sort of collaborative arrangement involving yourselves, either our staff members or consultants, and some local economist.

We have not yet received the PES KAP tape that I hope has now been converted to IBM format and dispatched by IBM to us.

If you would like us to go ahead and provide the finance that Dorothy has requested, I should be grateful if you could specify the exact amount. I should also very much appreciate hearing from you whether you think it would be possible to arouse sufficient local interest among economists to be able to set up some arrangement for collaboration in the subsequent analysis of the data.

Sincerely yours,

Timothy King
Chief,
Population and Human Resources Division
Development Economics Department

RESEARCH - GEN

Mr. Hollis B. Chenery, VP, VPD January 17, 1975

B. B. King, VPD Signed B. B. King

Evaluation of Urban Development Projects

1. The upshot of this meeting was that:

(i) P & B underwrite the project, in effect, in any case.

(ii) P & B would like money for the project and others like it to come out of the Research Budget, sweetened accordingly. No one else thought so.

(iii) Further discussions on how the underwritten Bank contribution would be financed (in the sense of budgetary classification) was left in abeyance until Herman van der Tak and I, with Chris Willoughby and any others, had reported on it.

2. The meeting lasted rather longer than it took to write this.

cc: Messrs. Stern
van der Tak
Rao, D.C.

BBKing:gm

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Mr. Y. Rovani, Director, PBP DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Responsible Staff Member
238	Anderson
239	Anderson
267	Sheehan
276	Warford
311	Anderson/Warford
312	Shipman

cc w/att.: P. Peters
Attachments

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. J. Duloy, Director, DRC

DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Responsible Staff Member
203	C. Lluch
204	B. Balassa
206	M. Ahluwalia
207	B. Balassa
209	M. Ahluwalia
210	B. Balassa
216	R. Norton
223	A. Stoutjesdijk
224	A. Stoutjesdijk
269	R. Norton
273	B. Balassa
283	M. Ahluwalia
284	M. Ahluwalia
285	C. Chiswick
286	J. Duloy/N. Carter/R. Norton
287	B. Balassa
294	M. Ahluwalia
308	M. Ahluwalia
309	A. Stoutjesdijk
317	P. Hazell

Attachments
cc w/att.: M. Gary

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

Research

OFFICE MEMORANDUM

TO: Mr. R. Gulhati, Director, ECD

DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Responsible Staff Member
218	S. Reutlinger
222	G. Pursell
241	D. Keare
243	D. Mazumdar
245	D. Mazumdar
247	D. Mazumdar
270	D. Keare
275	R. Hofmeister
277	K. DiTullio
280	S. Reutlinger
290	A. Sant'Anna
291	J. Simmons
293	U. Lele
295	F. Thoumi
296	J. Meerman
297	J. English
298	O. Grimes
299	R. Moran
302	T. King
303	T. King
304	A. Berry
305	V. Prakash
306	R. Krishna
307	L. Westphal
318	J. Linn
319	J. Simmons

Attachments
cc w/att.: Mr. Busz

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. David Greene, CPII, LAC

DATE: January 16, 1975

FROM: M. Hazzah, VPD

SUBJECT: Research Project Status Report, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Form completed for RPO 310 and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974.

I am attaching a copy of the December External Research Computer Printout where necessary.

Attachment

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Mr. D. Ballantine, Director, EDP

DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Staff Member Responsible
244	Jallade
278	Hultin

Attachments

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Mr. P. Hasan, Chief Economist, AENVP DATE: January 16, 1975

FROM: M. Hazzah, VPD YH

SUBJECT: Research Project Status Report, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Form completed for RPO 279 and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974.

I am attaching a copy of the December External Research Computer Printout where necessary.

Attachment

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Mr. W. Tims, Director, EPD

DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD MH

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Responsible Staff Member
268	E. Yudin
282	S. Singh
323	W. Tims

Attachments
cc w/att.: M. Gary

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Mr. F. Moore, NDP

DATE: January 16, 1975

FROM: M. Hazzah, VPD

SUBJECT: Research Project Status Report, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Form completed for RPO 225 and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974.

I am attaching a copy of the December External Research Computer Printout where necessary.

Attachment

OFFICE MEMORANDUM

Research

TO: Mr. M. Yudelman, Director, AGP

DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Staff Member Responsible
212	Donaldson
213	Egbert
214	Duane
289	Donaldson
321	Lowenstein
322	Egbert

Attachments

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Mr. E. Jaycox, Director, TRU

DATE: January 16, 1975

FROM: Mona A. Hazzah, VPD

SUBJECT: Research Project Status Reports, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Forms completed and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974. Listed below are the project numbers, and the name of the responsible staff member, for which Quarterly Status Reports are required.

I am attaching copy(ies) of the December External Research Computer Printout where necessary.

RPO Number	Responsible Staff Member
226	Sud
227	Harral
228	Harral
229	Mitchell
232	Hardy
271	Mitchell
313	Harral
314	Mitchell
315	Sud
316	Beier
320	Holland

Attachments

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Those Listed Below

DATE: January 16, 1975

FROM: Hollis B. Chenery, VP-DP HBC

SUBJECT: Bank Research Program

1. The Bank's external research program is now over three years old. During this time we have made many improvements in the Bank's research activities and have also learnt a great deal about the problems of organizing a central research program. One of these is that the objectives and content of the research program are initially known to relatively few Bank staff and are disseminated only gradually. I hope that wider distribution of the attached documents will help to widen familiarity with the Bank's research program.

2. The report entitled Bank Group Research Program discusses the main features of the program and gives a brief overview of the topics being investigated and of those that have been completed. The accompanying Abstracts of Current Studies provides descriptions on each of the ongoing research projects grouped by subject and a country index identifying all research projects pertaining to specific countries.

3. The success of the Bank's research program depends crucially on better contact between the producers and users of research. To improve this interchange, I would urge all researchers to identify potential users of their studies and devise ways of presenting results in a manner that is intelligible and attractive to them. Similarly, I would urge the operating staff in the Bank to identify research projects that are potentially useful to them, discuss them with the researchers mentioned in the Abstracts and consider how the results can be used in Bank operations or country analysis.

4. As the report indicates, a further step is essential to improve the operational orientation of the Bank's research activities. Research producers and users should work jointly to identify operational problems that can benefit significantly from research and to formulate proposals for review by the Research Committee. I would particularly urge operating staff to take the initiative in this matter and discuss possible research ideas with their counterparts in CPS and DPS.

5. On reading these documents, if you have any observations on the organization of the Bank's research activities, please communicate them, preferably in writing, to Mr. B. B. King (Research Adviser) or Mr. D. C. Rao (Secretary to the Research

Committee). Additional copies of the Abstracts booklet are available (Ext. 2057) for wider distribution if you wish.

Distribution:

Directors, Advisors and Division Chiefs in DPS, CPS, International Relations, EDI, Information & Public Affairs, Operations Evaluation
Regional Vice President, Directors, Chief Economists, & Division Chiefs
Messrs. Piero Sella, Thomas Mitchell

DCRao/HBChenery:cjl

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research

TO: Mr. A. Ray, VPS

DATE: January 16, 1975

FROM: M. Hazzah, VPD

SUBJECT: Research Project Status Report, Second Quarter FY75

I would appreciate it if you could have the attached Quarterly Status Report Form completed for RPO 208 and sent to my office (F1233) not later than Thursday, January 30. The information provided in the forms should be current as of December 31, 1974.

I am attaching a copy of the December External Research Computer Printout where necessary.

Attachment

RESEARCH

Research Committee Members January 16, 1975

D. C. Rao, VPD

Meeting of the Research Committee

1. The next meeting of the Research Committee will be on Thursday, January 30, 1975 at 3:00 p.m. in Room E1201.

2. We will discuss:

(i) The Annual Report;
(ii) Budgetting questions;
(iii) Timing of meetings to review proposals;
(iv) Any other business.

3. As you know, the Board discussion of the Annual Report is scheduled for February 4. I hope you will be able to attend.

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
B. B. King, Lerdau, Schulmann, Thalwitz,
van der Tak, Vergin, Waelbroeck, Yudelman
Mrs. Hughes

DCRao:gm

RESEARCH - GEN

Those Listed Below   January 16, 1975

Hollis B. Chenery, VP-DP Signed Hollis B. Chenery

Bank Research Program

1. The Bank's external research program is now over three years old. During this time we have made many improvements in the Bank's research activities and have also learnt a great deal about the problems of organizing a central research program. One of these is that the objectives and content of the research program are initially known to relatively few Bank staff and are disseminated only gradually. I hope that wider distribution of the attached documents will help to widen familiarity with the Bank's research program.

NOT ATTACHED

2. The report entitled Bank Group Research Program discusses the main features of the program and gives a brief overview of the topics being investigated and of those that have been completed. The accompanying Abstracts of Current Studies provides descriptions on each of the ongoing research projects grouped by subject and a country index identifying all research projects pertaining to specific countries.

3. The success of the Bank's research program depends crucially on better contact between the producers and users of research. To improve this interchange, I would urge all researchers to identify potential users of their studies and devise ways of presenting results in a manner that is intelligible and attractive to them. Similarly, I would urge the operating staff in the Bank to identify research projects that are potentially useful to them, discuss them with the researchers mentioned in the Abstracts and consider how the results can be used in Bank operations or country analysis.

4. As the report indicates, a further step is essential to improve the operational orientation of the Bank's research activities. Research producers and users should work jointly to identify operational problems that can benefit significantly from research and to formulate proposals for review by the Research Committee. I would particularly urge operating staff to take the initiative in this matter and discuss possible research ideas with their counterparts in CPS and DPS.

5. On reading these documents, if you have any observations on the organization of the Bank's research activities, please communicate them, preferably in writing, to Mr. B. B. King (Research Adviser) or Mr. D. C. Rao (Secretary to the Research

Committee). Additional copies of the Abstracts booklet are available (Ext. 2057) for wider distribution if you wish.

Distribution:

Directors, Advisors and Division Chiefs in DPS, CPS,
International Relations, EDI, Information & Public
Affairs, Operations Evaluation
Regional Vice President, Directors, Chief Economists,
& Division Chiefs
Messrs. Piero Sella, Thomas Mitchell

DCRao/HBChenery:cjl

Research

Those listed below | January 15, 1975

B. B. King, VPD Signed B. B. King

<u>Research Financed under Loans and Credits</u>

With the agreement of Messrs. Goodman and van der Tak, we are endeavoring to initiate a system of recording research financed under loans and credits in order to have a single and current Bank source for this information. There are various difficulties, not the least of which is that of definition. What is research? And what, within research, is socio-economic research (as opposed to biological and other technical)?

As a start, we have made the attached compilation for loans and credits made during FY74, arranged by sector. In doing this, we have used as broad an interpretation of research as seemed reasonable. Before going on to compile similar data for FY75 and limited historical information before FY74, we would like to make sure we are starting on the right foot. I would, therefore, appreciate your comments, especially on:

(i) Errors of fact;
(ii) Errors of omission;
(iii) Ideas as to a useful classification (this column has been left blank, so far);
(iv) Potential usefulness of information of this kind to you, if any.

Attachment

Distribution

Messrs. Goodman
van der Tak
Rao, D.C.
Project Department Directors, Regional Offices
Department Directors, Central Projects Staff

BBKing:gm

RESEARCH COMPONENTS FINANCED OUT OF LOANS AND CREDITS - FY74

Country PR Report No. Project Title	Report Reference/1	Research Component	Financing: Bank Loan IDA Credit	Financing: Total Project Amount (US$ million)	Financing: Amount Research Component	Consultants Research Institutions/Agencies Responsible	Start Completion Date	Classification
1. AGRICULTURE								
Cameroon - 1362-CAM Livestock Development		The project provides for 12 man-years for overseas graduate and post-graduate training for specialists in livestock production, livestock credit, tsetse fly survey and eradication.	11.0	14.6	N.A.	N.A.		
Congo - 1314-COB Congo Livestock Project	PA 169a Annex III	Applied research on (a) pasture establishment and utilization; (b) animal husbandry; (c) ranch management; (d) development of techniques needed to support further livestock development.	5.6	8.7	N.A.	Office du Ranche de la [illegible]	1973-80	
Ecuador - 1241a-EC Milagro Irrigation		Research on seeds, and seed multiplication. For this purpose 40-60 ha at Boliche Experimental Station will be improved for irrigation and data from on-going research on maize, rice, groundnuts, soybeans, and oilseed crops will be made available to the Project on a continuing basis.	5.5	10.7	0.04	National Agricultural Research Institute (INIAP)		
Ethiopia - 1425a-ET Second Wolamo Agricultural Development II		Assistance to the Wolamo Agricultural Unit (WADU) for on-going research on diversification and fertilizer use for cash crops and fodder. An appropriate system of research coordination with Institute of Agricultural Research will be set up.	12.0	17.32	N.A.	N.A.		
Ethiopia - 1445a-ET Drought Areas Rehabilitation	44a-ET Annex 2 para. 3.35	A. Survey studies on (1) water development; (2) conservation measures; (3) roads; (4) surveys and planning in connection with the reorganization of landholdings; (5) evaluation programs. B. Agricultural trials and minor rural industries research and development.	10.0	10.0	A. 0.36 B. 0.83	Institute of Agricultural Research	1975-77	
Guyana - 188-GUA Tapakoma Irrigation		Establishment of three research farms for Guyana Rice Board in areas representative of the main soil types to carry out research on variety trials, fertilizer response, water requirements, pest and disease control, seed testing, and improved cultivation techniques.	12.9	18.5	0.6	N.A.		
India - 1356-IN Himachal Pradesh Apple Processing & Marketing Project	262a-IN para. 4.16	Project evaluation study to set up a large-scale integrated system aimed at improving processing and marketing of a perishable horticultural crop.	12.0	21.7	0.091	N.A.	1975-78	
India - 1462-IN Chambal Command Area Development Project	430-IN Annex 9 para. 24	Research on cropping patterns, net returns and farm income studies, research on soil capabilities and drainage requirements. Development of irrigation plots for training of staff. Reclamation of saline and alkaline soils. Applied research on water use, fertilizer response and soil fertility.	52.0	91.5	0.085	N.A.	1975-81	
Israel - 1317a-IS Second Agricultural Credit Project	234a-IS para. 3.16	Research on commodities, citrus, tropical fruit, turkey and mutton.	35.0	84.0	1.5	Agriculture Research Organization (ARO) of Israel	1974-77	
Korea - 1322-KO Seed Project	PR-36	Research on crop breeding and cultural practices, cereal grains, soybeans, potatoes and forages.	7.0	22.8	N.A.	Office of Rural Development, Seoul College of Agriculture, Seoul	1974-78	
Mali - 1398a-MLI Integrated Rural Development Project	PR 33	Applied research on diversifying agricultural production in the project area; improve local varieties of groundnut and adapting materials developed in countries with similar conditions - soil survey and trials.	8.6	18.9	0.41	Bureau pour le Development de la Production Agricole (BDPA) Groupement d'etude et de Recherches pour le Development de l'Agronomie Tropicale (GERDAT)	1975-79	
Mauritania - 1396-MAU Irrigation Engineering Project	PR Annex III	A. Study of manpower and educational requirements needed for the efficient implementation of irrigation projects. B. Study of the impact of irrigated development on health conditions.	1.1	1.5	A. 0.032 B. 0.03	SCET International Consulting Firm	1974-76	
Morocco - Sebou II Development		Project provides for consulting services to assist Regional Agricultural Development Office (ORMVAG) in organizing a sugarcane division to undertake research, extension, and training, and also for studies on pollution control, flood protection, and schistosomiasis control. It also provides for 42 man-months of overseas fellowship for ORMVAG, MARA, and SUNACAS staff for observations on sugarcane research, processing, and extension services in a number of sugarcane producing countries.	42.0	53.7	1.5			
Sudan - 1401-SU Agricultural Development for Southern Sudan	368a-SU Schedule 6	Livestock marketing surveys - (1) provision of market outlet for cattle; (2) increased cash incomes of nomadic cattle owners; (3) expanded supplies of meat in the provincial capitals; (4) collection of data for the development of an expanded marketing program.	10.7	12.6	0.3	Project Development Unit of the Ministry of Agriculture	1974-78	
Tanzania - 1335-TA Geita Cotton Project	269a-TA para. 4.15	A. Project Evaluation Unit to improve on base line data, analyze progress of project, evaluate project components, farm management research for planning data. B. Research to improve use of insecticides and fertilizers on cotton and maize - farm trials. C. Soil laboratory.	17.5	23.8	A. 0.26 B. 0.50 C. 0.23	Tanzanian Cotton Authority (TCA)	1974-81	
Tanzania - 1412-TA Cashewnut Development		Research on improved individual tree care, fertilizer and insecticide; use and intercropping of cashew with food crops, vegetative propagation, spacing and pruning trials.	6.0	7.26	N.A.	Ntwara Research and Training Institute		
Thailand - 1201-TH Chao Phya Irrigation Improvement Project	24a-TH Annex 10	1. Cost recovery study to propose levels of water changes and tax collection procedures. 2. Seed selection and multiplication. 3. Mechanical land preparation techniques. 4. Crop and land management for different varieties of crops.	5.5	10.6	1.0	Regional Research Center Royal Irrigation Department	1974-78	
Upper Volta - 1359a-UV Agricultural Development Project	297a-UV para. 4.13	Adaptive Research Center to determine (1) variety trials, fertilization, insect control rotation; (2) multiplication of seeds.	8.0	10.3	0.83	1. Institut de Recherche Agronomique Tropicales et des Cultures Vivrieres (IRAT). 2. Institut de Recherches pour les Huiles et Oleagineux (IRHO). 3. Institut de Recherches du Cotton et des Textiles Exotiques (IRCT).	1975-79	

Country PR Report No. Project Title	Report Reference /1	Research Components	Financing: Bank Loan IDA Credit	Financing: Total Project Amount (US$ million)	Financing: Amount of Research Component	Consultants Research Institutions/Agencies Responsible	Start - Completion Date	Classification
II. EDUCATION								
Mauritania - 1322-MAU Education Project	255a-MAU Summary & Conclusions para. iii	Koranic School experimental study to ascertain whether modest amount of support through simple instructional materials can materially increase the literacy and numeracy achieved by this instruction.	3.5	5.8	0.34	National Pedagogical Center Project Unit, Ministry of Planning	1974-77	
III. POPULATION								
Egypt - 1305a-UAR Population Study	PR Annex III	Study of family planning acceptance and evaluation, experimental home-visiting program for family planning motivation, study on improved maintenance of health facilities.	5.0	10.5	0.25	Egyptian Institutions	1974-77	
IV. PUBLIC UTILITIES								
Bolivia - 1228a-BO Third Power Project	190a-BO para. 4.02	Power sector studies of the present and future availability of prices and consumption of energy by sources.	6.0	7.1	0.1	Empresa Nacional de Electricidad Direccion Nacional de Electricidad	1974-76	
Brazil - 1375-BR Minas Gerias Water Supply and Sewerage Project	PR Annex III	Socio-economic study of the impact of water charges in Minas Gerias. Analysis of water usage habits of consumers to determine the income elasticity of demand to serve as basis for revising the state water and sewerage structure.	36.0	92.0	1.0 (local financing)	State Water Company of Minas Gerias (COMAG)	1974-76	
Ecuador - 1424a-EC Water Supply Project	PR para. 23	Water demand and system improvement study of project area. Ground water and desalination studies.	23.2	38.3	0.6	Empresa Municipal de Aguas Potable de Guayaquil (EMAP)	1974-77	
Malawi - 1306-MAI Second Power Project	PR Annex III	Study of the adequacy of ESCOM /2 tariff structure to reflect power consumption patterns.	7.5	14.5	0.032	N.A.	1974-75	
Tunisia - 1417a-TUN Third Water Supply Project	369a-TUN para. 5.01	Study of the economic cost of distributing potable waters which contain different levels of salinity.	23.0	42.0	0.69	Societé Nationale d'exploitation et de distribution des Eaux	1974-79	

/1 Appraisal report, when number shown; otherwise President's report (PR).
/2 ESCOM = Electricity Supply Commission of Malawi.

January 14, 1975

Research

Mr. Hollis B. Chenery, VP - VPD

January 15, 1975

D. C. Rao, VPD

Distribution of External Research Booklets

Ben and I thought it would be a good idea to give the Annual Report and the Abstracts booklet wider distribution in the Bank. This would also be an opportunity for a "message" to the operating staff to stimulate demand-induced research proposals. A draft of such a "message" is attached. If you approve, we will proceed with the distribution.

Attachment

DCRao:gm

D R A F T
DCRao:gm
January 15, 1975

TO: Directors, Advisors and Division Chiefs in DPS, CPS, International Relations, EDI, Information & Public Affairs, Operations Evaluation
Regional Vice Presidents, Directors, Chief Economists, Messrs. Piero Sella, Thomas Mitchell

FROM: Hollis B. Chenery, Vice President, VPD

SUBJECT: External Research Program

The Bank's external research program is now over three years old. During this time we have been able to bring about many improvements in the Bank's research activities and have also learnt a great deal about the problems in organizing a central research program. One of these problems is that the objectives and content of the research program are known to relatively few Bank staff -- especially in the operating departments. I hope that wider distribution of the attached documents will help in widening familiarity with the Bank's research program.

The report entitled Bank Group Research Program provides some discussion of the main features of the research program and a brief overview of the topics being investigated by external research projects. The accompanying Abstracts of Current Studies provides descriptions on each of the ongoing research projects grouped by subject and a country index identifying those research projects which study specific countries.

The success of the Bank's research program relies crucially on more and better contact between the producers and users of research. I would urge all those engaged in research to identify potential users of their research studies and think of ways of presenting research results in a manner that is intelligible and attractive to the users of research. Similarly, I would urge the operating staff in the Bank to select the research projects that are potentially useful to them, discuss them with the researchers mentioned in the Abstracts and consider precisely how the results of research can be used in Bank operations.

A further step is essential to improve the operational orientation of the Bank's research activities. Research producers and users must work jointly to identify operational problems that can benefit significantly from research and to formulate research proposals for review by the Research Committee. I would particularly urge operating staff to take the initiative in this matter and discuss possible research ideas with their counterparts in CPS and DPS.

On reading these documents, if you have some ideas on the organization of the Bank's research activities, please communicate them to Mr. B. B. King (Research Adviser) or Mr. D. C. Rao (Secretary to the Research Committee). Additional copies of the Abstracts booklet are available (Ext. 2057) for wider distribution if you wish.

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Mr. van der Tak
RESEARCH GEN

TO: Those listed below

DATE: January 15, 1975

FROM: B. B. King, VPD

SUBJECT: Research Financed under Loans and Credits

With the agreement of Messrs. Goodman and van der Tak, we are endeavoring to initiate a system of recording research financed under loans and credits in order to have a single and current Bank source for this information. There are various difficulties, not the least of which is that of definition. What is research? And what, within research, is socio-economic research (as opposed to biological and other technical)?

As a start, we have made the attached compilation for loans and credits made during FY74, arranged by sector. In doing this, we have used as broad an interpretation of research as seemed reasonable. Before going on to compile similar data for FY75 and limited historical information before FY74, we would like to make sure we are starting on the right foot. I would, therefore, appreciate your comments, especially on:

(i) Errors of fact;
(ii) Errors of omission;
(iii) Ideas as to a useful classification (this column has been left blank, so far);
(iv) Potential usefulness of information of this kind to you, if any.

Attachment

Distribution

Messrs. Goodman
van der Tak
Rao, D.C.
Project Department Directors, Regional Offices
Department Directors, Central Projects Staff

RESEARCH COMPONENTS FINANCED OUT OF LOANS AND CREDITS - FY76

Country & Report No. Project Title	Report Reference/1	Research Component	Bank Loan IDA Credit (US$ million)	Total Project Amount (US$ million)	Amount Research Component (US$ million)	Consultants Research Institutions/Agencies Responsible	Start Completion Date	Classification
1. AGRICULTURE								
Cameroon - 1362-CAM Livestock Development		The project provides for 12 man-years for overseas graduate and post-graduate training for specialists in livestock production, livestock credit, tsetse fly survey and eradication.	11.4	14.6	N.A.	N.A.		
Congo - 1314-COB Congo Livestock Project	PA 149a Annex III	Applied research on (a) pasture establishment and utilization; (b) animal husbandry; (c) ranch management; (d) development of techniques needed to support further livestock development.	5.6	8.2	N.A.	Office du Ranche de la Niboue [illegible]	1973-80	
Ecuador - 1251a-EC Milagro Irrigation		Research on seeds, and seed multiplication. For this purpose 40-60 ha at Boliche Experimental Station will be improved for irrigation and data from on-going research on maize, rice, groundnuts, soybeans, and oilseed crops will be made available to the Project on a continuing basis.	5.5	10.2	0.04	National Agricultural Research Institute (INIAP)		
Ethiopia - 1425a-ET Second Wolamo Agricultural Development II		Assistance to the Wolamo Agricultural Unit (WADU) for on-going research on diversification and fertilizer use for cash crops and fodder. An appropriate system of research coordination with Institute of Agricultural Research will be set up.	12.0	17.32	N.A.	N.A.		
Ethiopia - 1555a-ET Drought Areas Rehabilitation	466-ET Annex 2 para. 3.35	A. Survey studies on (1) water development; (2) conservation measures; (3) roads; (4) surveys and planning in connection with the reorganization of landholdings; (5) evaluation programs. B. Agricultural trials and minor rural industries research and development.	10.0	10.0	A. 0.36 B. 0.55	Institute of Agricultural Research	[illegible]	
Guyana - 388-GUA Tapakuma Irrigation		Establishment of three research farms for Guyana Rice Board in areas representative of the main soil types to carry out research on variety trials, fertilizer response, water requirements, pest and disease control, seed testing, and improved cultivation techniques.	12.9	18.5	0.4	N.A.		
India - 1356-IN Himachal Pradesh Apple Processing & Marketing Project	263a-IN para. 4.16	Project evaluation study to set up a large-scale integrated system aimed at improving processing and marketing of a perishable horticultural crop.	13.0	21.7	0.091	N.A.	1975-78	
India - 1461-IN Chambal Command Area Development Project	430-IN Annex 9 para. 24	Research on cropping patterns, net returns and farm income studies, research on soil capabilities and drainage requirements. Development of irrigation plots for training of staff. Reclamation of saline and alkaline soils. Applied research on water use, fertilizer response and soil fertility.	52.0	91.5	0.065	N.A.	1975-81	
Israel - 1317a-IS Second Agricultural Credit Project	234a-IS para. 3.18	Research on commodities, citrus, tropical fruit, turkey and mutton.	35.0	84.0	1.5	Agriculture Research Organization (ARO) of Israel	1976-77	
Korea - 1227-KO Seed Project	PR-34	Research on crop breeding and cultural practices, cereal grains, soybeans, potatoes and forages.	7.0	22.8	N.A.	Office of Rural Development, Seoul College of Agriculture, Seoul	1974-78	
Mali - 1398a-ML Integrated Rural Development Project	PR 33	Applied research on diversifying agricultural production in the project area; improve local varieties of groundnut and adapting materials developed in countries with similar conditions - soil survey and trials.	8.0	18.9	0.41	Bureau pour le Development de la Production Agricole (BDPA) Groupement d'Etudes et de Recherches pour le Development de l'Agronomie Tropicale (GERDAT)	1975-79	
Mauritania - 1396-MAU Irrigation Engineering Project	PR Annex III	A. Study of manpower and educational requirements needed for the efficient implementation of irrigation projects. B. Study of the impact of irrigated development on health conditions.	1.1	1.3	A. 0.052 B. 0.03	SCET International Consulting Firm	1975-76	
Morocco - Sebou II Development		Project provides for consulting services to assist Regional Agricultural Development Office (ORMVAG) in organizing a sugarcane division to undertake research, extension, and training, and also for studies on pollution control, flood protection, and schistosomiasis control. It also provides for 42 man-months of overseas fellowship for ORMVAG, MARA, and SUNACAS staff for observations on sugarcane research, processing, and extension services in a number of sugarcane producing countries.	32.0	51.7	1.5			
Sudan - 1401-SU Agricultural Development for Southern Sudan	368a-SU Schedule 6	Livestock marketing surveys - (1) provision of market outlet for cattle; (2) increased cash incomes of nomadic cattle owners; (3) expanded supplies of meat in the provincial capitals; (4) collection of data for the development of an expanded marketing program.	10.7	12.6	0.3	Project Development Unit of the Ministry of Agriculture	1974-78	
Tanzania - 1331-TA Geita Cotton Project	269a-TA para. 4.15	A. Project Evaluation Unit to improve on base line data, analyze progress of project, evaluate project components, farm management research for planning data. B. Research to improve use of insecticides and fertilizers on cotton and maize - farm trials. C. Soil laboratory.	17.5	23.8	A. 0.26 B. 0.50 C. 0.23	Tanzanian Cotton Authority (TCA)	1975-81	
Tanzania - 1612-TA Cashewnut Development		Research on improved individual tree care, fertilizer and insecticide; use and intercropping of cashew with food crops, vegetative propagation, spacing and pruning trials.	4.0	7.26	N.A.	Mtwara Research and Training Institute		
Thailand - 1201-TH Chao Phya Irrigation Improvement Project	243a-TH Annex 10	1. Cost recovery study to propose levels of water charges and tax collection procedures. 2. Seed selection and multiplication. 3. Mechanical land preparation techniques. 4. Crop and land management for different varieties of crops.	5.5	10.0	1.0	Regional Research Center Royal Irrigation Department	[illegible]	
Upper Volta - 1359a-UV Agricultural Development Project	297a-UV para. 4.13	Adaptive Research Center to determine (1) variety trials, fertilization, insect control rotation; (2) multiplication of seeds.	6.0	10.2	0.83	1. Institut de Recherche Agronomique Tropicale et des Cultures Vivrières (IRAT). 2. Institut de Recherche pour les Huiles et Oléagineux (IRHO). 3. Institut de Recherches du Coton et des Textiles Exotiques (IRCT)	[illegible]	

Country PR Report No. Project Title	Report Reference /1	Research Components	Financing: Bank Loan IDA Credit	Financing: Total Project Amount (US$ million)	Financing: Amount of Research Component	Consultants Research Institutions/Agencies Responsible	Start Completion Date	Classification
II. EDUCATION								
Mauritania - 1322-MAU Education Project	255a-MAU Summary & Conclusions para. iii	Koranic School experimental study to ascertain whether modest amount of support through simple instructional materials can materially increase the literacy and numeracy achieved by this instruction.	3.8	4.8	0.34	National Pedagogical Center Project Unit, Ministry of Planning	1974-77	
III. POPULATION								
Egypt - 1305a-UAR Population Study	PR Annex III	Study of family planning acceptance and evaluation, experimental home-visiting program for family planning motivation, study on improved maintenance of health facilities.	5.0	10.5	0.25	Egyptian Institutions	1974-77	
IV. PUBLIC UTILITIES								
Bolivia - 1228a-BO Third Power Project	190a-BO para. 4.02	Power sector studies of the present and future availability of prices and consumption of energy by sources.	6.0	7.3	0.1	Empresa Nacional de Electricidad Direccion Nacional de Electricidad	1976-76	
Brazil - 1275-BR Minas Gerias Water Supply and Sewerage Project	PR Annex III	Socio-economic study of the impact of water charges in Minas Gerias. Analysis of water usage habits of consumers to determine the income elasticity of demand to serve as basis for revising the state water and sewerage structure.	36.0	92.0	1.0 (local financing)	State Water Compady of Minas Gerias (COMAG)	1974-76	
Ecuador - 1424a-EC Water Supply Project	PR para. 23	Water demand and system improvement study of project area. Ground water and desalination studies.	23.2	38.3	0.6	Empresa Municipal de Aguas Potable de Guayaquil (EMAP)	1974-77	
Malawi - 1306-MAI Second Power Project	PR Annex III	Study of the adequacy of ESCOM/2 tariff structure to reflect power consumption patterns.	7.5	14.3	0.032	N.A.	1974-75	
Tunisia - 1417a-TUN Third Water Supply Project	369a-TUN para. 5.01	Study of the economic cost of distributing potable waters which contain different levels of salinity.	23.0	42.6	0.69	Société Nationale d'exploitation et de distribution des Eaux	[illegible]	

/1 Appraisal report, when number shown; otherwise President's report (PR).
/2 ESCOM = Electricity Supply Commission of Malawi.

January 14, 1975

VRESEARCH - GEN
C: GEN. DEV. POL. - GEN
C - ASIA -

Messrs. Diamond, Dir., ASA, and
Votaw, Dir., AEA

January 15, 1975

Hollis B. Chenery, VP-DP Signed Hollis B. Chenery

My Trip to East and South Asia in February

1. Following our discussions last week, I gather that my proposed schedule (attached) is satisfactory and that your Division Chiefs will make the necessary arrangements in each country except Japan. Following are some notes on the general purposes of my visits and a few suggestions to supplement the discussions that we have already had.

2. General purposes - In almost all countries I would like to discuss the following topics with government officials and, where possible, with academics or other knowledgeable people in the private sector:

a. The impact of higher oil prices and other price changes on the country's balance of payments, and development projects, and the possibilities for adjusting to this impact. Sub-topics would include energy, agriculture, import substitution, and exports.

b. The impact of development on income distribution and related Bank projects in such sectors as rural development, urbanization, etc.

c. Development research. A third of the Bank's current research concerns the six countries to be visited and most of it involves local institutions.* I would like to meet with the principal local research groups to discuss their current programs and existing or prospective collaboration with Bank researchers.

In connection with the above, I can, if requested, give a seminar or lecture on either: (i) Bank work on energy and raw materials, stemming from the report (R477) on this topic and my Foreign Affairs article, "Restructuring the World Economy;" or (ii) Bank work on income distribution.

3. Tokyo - I would be particularly interested in discussing Japan's own adjustment to the energy crises, impressions as to the overall adjustment problems of Far East, and effects on the Japanese aid program and changes in its trade with developing countries.

---

* See listing in the pamphlet on World Bank Research Program: Abstracts of Current Studies.

On the research side, I would like to meet with the group in the International Development Center which has been carrying out the project on Japan's relations with East and South East Asia (RP0279), as well as any other research groups that might be suggested. I would specifically like an appointment with Tsunehiko Watanabe, who will be collaborating with the DPS staff as a consultant in a study of industrialization.

4. Taipei - As the Bank has no plans for new lending to Taiwan, I will limit my discussion to the general topics outlined above. Since the Bank is financing a research project by the Yale Growth Center on income distribution, I would particularly like to meet any researchers interested in this field.

I discussed these interests with K. T. Li at the annual meeting in September, and I think he would be prepared to arrange a program for me. If time permits, we would also like to spend a day visiting whatever agricultural or small industry activities might be suggested in order to get some impression of the employment-creating affects of the Taiwanese development experience.

5. Manila - I have discussed the possibilities in the Philippines in some detail with Mr. Cheetham, and I will be guided by his suggestions. All of the general topics listed in paragraph 2 apply here. I would like to include contacts with the University of the Philippines and other research groups as well as government planners. If possible, I would like to take a field trip on the weekend that we arrive and might, if necessary, accelerate the arrival from Saturday to Friday. I spoke to Mr. Roxas of these possibilities when he was here at the annual meeting, and he offered to arrange for such a visit. I have since received a cable from him and have told him the timing of my visit.

6. Kuala Lumpur - I am primarily concerned with the several research projects which are being carried on jointly with the Malaysians. (Ahluwalia will specify the people to see.) In addition, at Bernie Bell's suggestion, I am scheduled to attend one session of the Energy Symposium on February 20 and to make a statement to it. In official contacts, I would be interested in discussing rural development and other aspects of the government's development program and a possible field trip if time permits.

7. New Delhi - My major concerns are with the adjustment of the economy to the increased cost of its imports and in the revisions that have taken place in the government's development strategy. When I was in Delhi two years ago, I had fairly extensive discussions in the Planning Commission and the ISI and also spent quite a lot of time on export prospects. The latter subject is still high on the priority list. I would also like to have some varied contacts with academic economists (Minhas, Srinivasan, etc.) on the general topics indicated above.

8. Islamabad - Within the general terms of reference stated in paragraph 2, I am open to suggestion as to how I should spend my time. Since I have been an adviser to the Pakistan Institute of Development Economics since its foundation, I would like to have some contact with its work.

Attachment

cc: Mrs. H. Hughes, ECD
Messrs. Hasan, AENVP
Baneth, ASNVP
Cheetham, AEA
Ahluwalia, DRCID

Messrs. G. D. Loos, Div. Chief, Japan & Taiwan
W. Humphrey, Div. Chief, Philippines
J. H. Collier, Div. Chief, Pakistan
J. Kraske, Div. Chief, India
F.L.C.H. Helmers, Div. Chief, Malaysia

HBChenery:cjl

(7-73)

WORLD BANK GROUP

OPERATIONAL TRAVEL REQUEST

Charge to			
S... Code	Div. Code	Type	FY
VPD		CA	1975

Mo.	Day	Yr.	Travel Request No.
1	8	75	T R

Check if: Spouse Travel XXX | Travel undertaken on behalf of UNDP* [ ] | Type of Action: (check one) Request XX Change [ ] Cancellation [ ]

Name	Staff No.	Department or Office and Division	Room No.	Extension
Mr. and Mrs. Hollis B. Chenery	1552	VP-Development Policy	E1239	3665

Title: VP-Development Policy

Estimated Cost of Trip US $ — Air Fare A | Expenses B

Duration: 24 days

Purpose of Trip and Operation to be Charged

Activity Code	Operation Identification	Days

Purpose of Trip (enumerate by City, purposes for each stop listed as Official)

Japan: To discuss (i) the effects of the oil crisis on the Japanese economy; (ii) joint research projects, (iii) recruitment possibilities.

Other Countries: To discuss adjustment to the energy problem, development plans, Bank economic work and research projects.

I intend to take leave during this trip as follows:
(A Leave Request has been submitted to cover the period involved.)

If not the most direct route explain under Remarks

City		Date	Trav.** Office Code	Mode and Class of Travel	Hotels	Official	Auth. S/Os.	Personal	TOTAL
Wash/Dulles	Lv.	2/6/75		UA053					
San Francisco	Ar.	2/6/75							
San Francisco	Lv.	2/6/75		UA097	Makaha Inn				
Honolulu	Ar.	2/6/75				~~2~~ 1		1	2
Honolulu	Lv.	2/8/75		PA831					
Tokyo	Ar.	2/9/75			Imperial	3			3
Tokyo	Lv.	2/12/75		CX451					
Taipei	Ar.	2/12/75			Grand	3			3
Taipei	Lv.	2/15/75		PR401					
Manila	Ar.	2/15/75			Hyatt	4			4
Manila	Lv.	2/19/75		MH674A					
Kuala Lumpur	Ar.	2/19/75			Hilton	4			4
Kuala Lumpur	Lv.	2/23/75		MH653					
Singapore	Ar.	2/23/75							
Singapore	Lv.	2/23/75		BA961					
Delhi	Ar.	2/24/75			Intercont.	3			3
Delhi	Lv.	2/26-75		JL451					
Karachi	Ar.	2/26/75			"				

Visas Required: 1. 2. 3. 4.

CONTROLLER'S DEPARTMENT USE
Spouse Credits _____ as at _____
Charge _____
Charge _____

Signature of Traveller

Signature of Approval (Staff member's dept.)
Signature of Approval (Dept. being charged)

Signature, Travel & Shipping Div.

Travel Advance
(a) Required for Hotel, Subsistence and Other Allowable Expenses $
(b) Excess Baggage Kilos _____ One Way [ ] Round Trip [ ] $*
TOTAL $*

Authorized by Travel & Shipping Div. _____
Authorized by Other (specify) _____
Advance received from _____ for an amount of $ _____ on _____ Signature _____
Ticket issued by _____ Ex-Bag. MCO issued by _____
*To be completed by Travel & Shipping Div.

Remarks:

* Give name of UNDP projects in the Remarks section; for Joint purpose trip indicate percentages to be charged to the IBRD and UNDP
** To be completed by Travel and Shipping Division

(TRAVELLER; COPY 6)

WORLD BANK ...

OPERATIONAL TRAVEL REQUEST
PAGE 2

...de	Div. Code	Type	FY	Mo.	Day	Yr.	Travel Request No.
D		CA	1975	1	8	75	T R

Spouse Travel [xx] Travel undertaken on behalf of UNDP* [ ] Type of Action: (check one) Request [XX] Change [ ] Cancellation [ ]

Name	Staff No.	Department or Office and Division	Room No.	Extension
Mr. and Mrs. Hollis B. Chenery	1552	VP-Development Policy	E1239	3665

...pose of Trip and Operation to be Charged	Estimated Cost of Trip US $ — Air Fare A	Expenses B	Duration
VP-Development Policy			24 days

...ctivity Code	Operation Identification	Days

Purpose of Trip (enumerate by City, purposes for each stop listed as Official)

(See first page)

I intend to take leave during this trip as follows:
(A Leave Request has been submitted to cover the period involved.)

If not the most direct route explain under Remarks

City		Date	Trav.** Office Code	Mode and Class of Travel	Hotels	Duration of Stay — Specify No. of Nights: Official	Auth. S/Os.	Personal	TOTAL
Karachi	Lv.	2/27/75		PK750					
Rawalpindi	Ar.	2/27/75			Intercont.	2			2
Rawalpindi	Lv.	3/1/75		PK785					
London/Heathrow	Ar.	3/1/75			1. Brown's	1			1
London/Heathrow	Lv.	3/2/75		BA521	2. Ritz				
Washington/Dulles	Ar.	3/2/75							
	Lv.								
	Ar.								
	Lv.								
	Ar.								
	Lv.								
	Ar.								
	Lv.								
	Ar.								
	Lv.								
	Ar.								

Visas Required
Already taken care of by
1. 3.
2. Visa Office. 4.

CONTROLLER'S DEPARTMENT USE
Spouse Credits ____ as at ____
Charge ____
Charge ____

Signature of Traveller

Signature of Approval (Staff member's dept.)
Signature of Approval (Dept. being charged)

Signature, Travel & Shipping Div.

Travel Advance
(a) Required for Hotel, Subsistence and Other Allowable Expenses $ 1,500.00
(b) Excess Baggage Kilos ____ One Way [ ] Round Trip [ ] $*
TOTAL $.1,500.00

Authorized by Travel & Shipping Div. ____
Authorized by Other (specify) ____
Advance received from ____ for an amount of $ ____ on ____ Signature ____
Ticket issued by ____ Ex-Bag. MCO issued by ____
*To be completed by Travel & Shipping Div.

Remarks: *Traveller's cheques: 10 x $100 = $1,000.00
8 x $50 = 400.00
5 x $20 = 100.00

*Give name of UNDP projects in the Remarks section; for dual purpose trip indicate percentages to be charged to the IBRD and UNDP
**To be completed by Travel and Shipping Division

(TRAVELLER; COPY 6)

RESEARCH - GEN.

Mr. Hollis B. Chenery, VP - VPD January 14, 1975

B. B. King, VPD Signed B. B. King

Research Committee/Annual Report

1. I attach one page each of two subjects for discussion:

(A) Agenda for Research Committee meeting. There would be a note on 1(i) and 2.

(B) Tentative allocation of E.D.'s for pre-briefing.

2. I have spoken to Don Pryor, who appears to have William Clark's proposal in hand.

Attachments

cc: Mr. D. C. Rao

BBKing:gm

A. AGENDA FOR RESEARCH COMMITTEE

1. Annual Report Follow-up

    (i) Modifications to procedure for submission of proposals, emphasizing requirements for:

    (a) Rough overview (as long as none exists) and justification of Bank comparative advantage.

    (b) Stating ultimate use and means for dissemination to ultimate user.

    (c) Early warning system 4-6 weeks in advance of actual proposal to get initial reactions of Committee, any instructions to panel and more time for panel.

    (ii) Any other observations.

2. Budgetting

With ongoing system, we need better idea of "forward commitments". Committee should "authorize" (unfortunately we use that word differently now) an overall cost and "appropriate" a current FY cost. At present, the system is very loose.

3. Suggested timing of next meetings:

    (i) February 28

    (ii) May 15

4. Any other business.

E.D.'s

Chenery (or Stern)

Sigurdsson (Iceland)
Sethness (US)
Razafindrabe (Malagasy)
Mekki (Sudan)
Khelif (Algeria)
Choi (Malaysia) - With Ahluwalia?

King

Rawlinson (UK)
Janssen (Germany)
Isbister (Canada)
Franco-Holguin (Colombia)

Rao/Karaosmanoglu

Sen (India)
Al-Atrash (Syria)

van der Tak

Witte (Netherlands)

Unallocated

McLeod (New Zealand)
Wahl (France)
Rota (Spain)
Hori (Japan)
de Groote (Belgium)

RESEARCH - GEN.

January 13, 1975

Professor Sidney Baldwin
California State University
Fullerton, California 92634

Dear Professor Baldwin:

Many thanks for your letter of January 8. I do recall our meeting in Mexico City and, indeed, Aran Schloss has since written me of his correspondence with you.

Turning to your research project, I imagine the Bank will be interested in the subject of technical transfer (diffusion of innovation) in agriculture. Whether it will be willing to finance such research is a question I am not qualified to answer. I would suggest, however, that you write Mr. Montague Yudelman, Director, Agriculture and Rural Development Department, at the above address giving him as much information as you now have on the design and scope of the project and indicating some tentative hypotheses you propose to test. Mr. Yudelman is also better qualified than I for advising you on alternative sources of financial support.

Please do not hesitate to write me again if I can be of any help.

Yours sincerely,

NR

Nimrod Raphaeli
Chief
Planning Advisory Division
International Relations Department

cc-Mr. M. Yudelman (with copy of incoming letter)

NR:fh

With kind regards,

Yours sincerely,

(R.P. SRIVASTAVA)

हवाई पत्र
AEROGRAMME

85पै 85P
भारत INDIA

Robert MCnamara, Esq.,
Chairman,
World Bank,
1818 H Street N.W.,
WASHINGTON DC 20433.
(U.S.A.)

पहला मोड़ FIRST FOLD

दूसरा मोड़ SECOND FOLD

इस पत्र के अन्दर कुछ न रखिये NO ENCLOSURES ALLOWED

RECEIVED
1975 JAN 21 AM 10:53
COMMUNICATIONS
SECTION

भेजने वाले का नाम और पता SENDER'S NAME AND ADDRESS

R.P. Srivastava
'STAR VILLA'
M-100A, Greater Kailash-I,
NEW DELHI - 110001
(India)

पिन PIN

भारत INDIA

Research
BCC

NEW DELHI: (India)
January 11, 1975.

Dear Mr. McNamara,

We in India admire greatly your views about the burning need for speedy economic development in developing countries. With galloping inflation now at around 30% and the crushing oil bill for fertilizer feedstock, road transport etc. the economy of India is under critical strain.

In the 70's there are definite signs of the world economy turning "global" in nature, with strong accent on inter-dependency features amongst Nations. This spotlights the urgent need of investing in a series of efforts of research study in the weak areas in the developing countries. This would also be a step towards avoiding the polarisation which seems to be in the making between the developed and developing countries, with the consequent racial problems. As it happens, the developing countries of the world are inhabited mostly by coloured peoples and account for an overwhelming part of the world population.

The foregoing call for urgent study and remedial steps. Under this realisation, I propose a Research study under the U.N. Sponsorship of the most crucial factor of Economic growths productivity etc., viz: "Management" in Developing countries. The study would cover the Agricultural, Ago-Industrial, Corporate Industrial and Commercial enterprises. The study would span mainly state-owned and also privately-owned ventures.

~~BMMMMMMMMM~~ Several years ago, Dr. Gunnar Myrdal brilliantly carried out a research on about the same lines under the U.N. into the poverty of developing countries with emphasis on agriculture. "Management" which basically makes the difference between the success or failure of an industry and between poverty and affluence of an economy, has not been to my knowledge, researched upon.

With career education in Professional Management and subsequent experience of about 30 years in Corporate Management (25 years of which relates to an American Organisation) I am currently working on a research study of the Appropriateness and Adequacy of Management patterns. The Govt. of India agencies have expressed their deep interests in the study too.

I am doing this simultaneously with my job in a Public Sector Undertaking in India, where I find muself placed after the Nationalisation of my erstwhile American Corporation in India in 1973. This gives me additional practical experience of the two management patturns. The task is, however, much too much for my slender personal resources and hence I request for your kind help. I may point out here that a couple of years ago I was placed on the International roster of Expert by UNDP too. Could the World Bank sponsor or aid the project?

Research

DOCUMENT OF
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION

NOT FOR PUBLIC USE

FOR EXECUTIVE DIRECTORS' MEETING

For consideration on February 4, 1975

R75-12/1
IDA/R75-2/1

FROM: The Secretary

January 10, 1975

ANNUAL REPORT ON BANK RESEARCH

Attached, in connection with the President's Memorandum and Report on the Bank Group Research Program (R75-12, IDA/R75-2) distributed on January 8, 1975, is a booklet entitled "World Bank Research Program - Abstracts of Current Studies."

Distribution:

Executive Directors and Alternates
President
Senior Vice President, Operations
Executive Vice President and Vice President, IFC
President's Council
Directors and Department Heads, Bank and IFC

Research

Research Committee Members January 9, 1975

D. C. Rao, VPD

Annual Report on External Research

A copy of the Board paper, Bank Group Research Program and the booklet, World Bank Research Program - Abstracts of Current Studies, are attached.

behind file

Attachments

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
B. B. King, Lerdau, Schulmann, Thalwitz,
van der Tak, Vergin, Waelbroeck, Yudelman
Mrs. Hughes

DCRao:gm

Research

DOCUMENT OF

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

NOT FOR PUBLIC USE

FOR EXECUTIVE DIRECTORS' MEETING

For consideration on February 4, 1975

R75-12

IDA/R75-2

FROM: The Secretary

January 8, 1975

ANNUAL REPORT ON BANK RESEARCH

The attached President's Memorandum and Report on the Bank Group Research Program will be considered at the meeting of the Executive Directors on February 4, 1975. A booklet entitled "World Bank Research Program - Abstracts of Current Studies" will be distributed separately.

Distribution:

Executive Directors and Alternates
President
Senior Vice President, Operations
Executive Vice President and Vice President, IFC
President's Council
Directors and Department Heads, Bank and IFC

Bank Group Research Program

January 8, 1975

Office of the Vice President, Development Policy

Not for Public Use

Document of the International Bank for Reconstruction and Development
International Development Association

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION
WASHINGTON, D.C. 20433 U.S.A.

OFFICE OF THE PRESIDENT

January 7, 1975

MEMORANDUM TO THE EXECUTIVE DIRECTORS

Subject: Bank Group Research Program

1. Last year the Board discussed the first comprehensive report on the Bank's external research program. This report covered the objectives and the administrative mechanisms of the program and the scope of the research projects being financed. It was generally agreed that there should be a periodic discussion of the Bank's research activities. The attached report by the Vice President, Development Policy, provides the second annual review of the socio-economic research activities of the Bank.

2. There has been a separate budget for external research since FY72. The responsibility for allocating this budget rests with the Vice President, Development Policy, who acts with the advice of a Research Committee drawn from all parts of the Bank. This report covers the major socio-economic research conducted by the Bank, including all projects financed from the external research budget. It excludes:

a) Small, generally short-term studies financed by departmental resources (including preparatory work for new research proposals);

b) Research carried out by Bank staff in the course of regular country, sector or commodity work;

c) Exceptional *ad hoc* studies, such as those leading to Report No. 477 on the "Prospects for the Developing Countries";

d) Research financed by loans and credits, which is related to specific projects;

e) Bank participation in the Consultative Group on International Agricultural Research.

3. The attached report is not intended to be comprehensive, but rather to be responsive to certain questions raised by the Executive Directors at the previous meeting, in particular the question of operational relevance. As the report indicates, there are still unsolved problems in the administration of the Bank's research program. At present, the most severe problems, which the Bank shares with most other public and private research institutions, are to ensure that research is undertaken on the most significant questions and that the results are used in operational decisions. Considerable progress has been made on this front, and the research staff is continuing to grapple with it. For example, recent policy papers on rural and urban development and the Bank's methods of project appraisal have benefitted from research on these topics.

4. In a month's time, there will be a seminar to discuss two research topics: a major agricultural project, "The Agricultural Sector in Mexico; and the Bank's research activities on public utilities in general. The seminar will provide an opportunity for further discussion of all aspects of the Bank's research activities in the context of specific projects.

5. The question of the size of the resources to be devoted to research in the future has not been raised in this report. I think that it would be more appropriate to consider it when the overall budget is presented later in the year.

Robert S. McNamara

Attachment

BANK GROUP RESEARCH PROGRAM

Table of Contents

BANK GROUP RESEARCH PROGRAM

I. INTRODUCTION

1. It is now more than three years since the establishment of a program of development research for the Bank Group as a whole. During this period approximately 100 research projects, in which the Bank contribution has ranged from under ten thousand to several hundred thousand dollars, have been initiated under the external research budget. Some twenty of the initial projects have been completed. Since two to four years are normally required to complete a piece of research and publish the results in some form, a normal pipeline of work in progress has been built up, so that Bank research can now be regarded as an ongoing activity.

2. The following report on the year's research activities is presented in three parts. Part II discusses the evolving role of research in the Bank and its relation to the international research community. Part III gives a summary description of the current research portfolio. Part IV discusses problems of implementation, dissemination and identification of future research topics.

II. THE ROLE OF RESEARCH IN THE BANK

Objectives

3. In the first annual report to the Board[1] we identified four major objectives for the Bank Research Program:

- 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.

1/ Bank Group Research Program (R73-257, November 12, 1973).

4. These objectives must be interpreted in the context of the Bank's unique position as a major source of analysis of development problems as well as a major lending institution. Over the past year we have sought to determine the scope of international research on topics of interest to the Bank and its member countries and to define more clearly the Bank's role in relation to other sources of development research.

5. Our basic objectives require us to address three distinct audiences:

- the policy and operating staff of the Bank

- policy makers in developing countries

- the international research community

In discussing last year's report, Executive Directors gave differing assessments of the importance of these three groups, and a few suggested that we should concentrate more on the Bank staff as the major consumer of our research output. However, since research that is valuable for internal use in the Bank will almost by definition be of value to others concerned with development problems, we have concluded that most research projects must address all three groups. We are trying to devise appropriate means for reaching each of these audiences in an economical and effective way.

Research Priorities and Capacity

6. A year ago we outlined the general directions and priorities recommended by the Research Committee and the changes in allocation of funds that might result from these recommendations. As compared to the allocations of external research funds for FY1972 and 1973, we proposed increased emphasis on Income Distribution, Population and Human Resources, Rural Development and Urban Development, and a corresponding reduction in the relative emphasis given to transportation and public utilities and to overall analyses of development. The allocation of external research funds over the past year has been generally consistent with these recommendations (with the exceptions noted in Part III), and we do not recommend any change in the proposed shares for the next four years.

7. Our ability to move into new areas of research depends largely on the development of a research staff with the required expertise and experience. Although we have no hesitation in turning to outside consultants or research groups to supplement our own capacity, the effective use of

external resources requires a minimum internal capability to formulate proposals and monitor the work in progress. The ability to identify research priorities and make effective use of the results is also closely linked to the development of the Bank's research staff.

8. The reorganization of the Bank in the fall of 1972 included a clear identification of the departments and divisions responsible for research in some 15 areas of concern to the Bank. The principal research producing departments have since been able to realign their staffs in accordance with the general guidelines established two years ago. We now have an adequate capacity to undertake research -- or at least to design and monitor outside research projects -- in most of the priority areas; in some of the newer fields, however, such as nutrition and health, this capacity is still quite small. Our capability has been strengthened in areas such as rural development, income distribution, and urbanization, although it will be another year or two before the research output reflects the shifts in priorities.

9. Over the past several years we have established a reasonable balance between the internal research capacity of the Bank staff and the use of external consultants or contractors. While there are nearly 150 members of the Central Projects and Development Policy Staffs whose responsibilities include the conduct of some research, almost all of them combine research with participation in operational activities. Fewer than 25 are able to devote full time to research. As a consequence, almost all major research -- with the principal exception of the work on forecasting and projections in the Economic Analysis and Projections Department -- requires some use of outside consultants to provide expertise not available in sufficient quantity in the Bank staff.

10. This mixture of internal and external resources has proved quite valuable from several points of view. It provides a broader diversity of views and approaches to research than can be obtained in a purely in-house research effort and exposes the Bank staff to the current thinking of other research groups. Equally important, it provides the basis for a continuous exchange with research institutions in developing countries and a useful division of labor in carrying out major projects. In the case of new areas such as income distribution, we have deliberately sponsored work in other institutions as well as the Bank in order to test the value of alternative approaches.

Collaboration

11. The Bank collaborates both with institutions which produce research and with those which sponsor research. In considering this collaboration, it is well to bear in mind that the Bank does not readily fall into either category, although it is liable to be classified as one or the other. While it has a research arm, its prime function is operational. It finances most research projects from its own resources, although there are several important exceptions. Insofar as the Bank supports research carried out elsewhere, it is apt to be considered a donor agency. However, this is to stretch the term too far, since the Bank's primary objective is to promote research relevant to its own interests rather than to finance proposals submitted to it. The process is more akin to subcontracting. Again, however, there are a few important exceptions.

12. Appendix Table 3 lists institutions which have played a part in the Bank's external research projects. They include research institutions, government departments and private consulting firms. Collaboration with these institutions typically arises in the following way. Once a problem has been identified as worthy of consideration for a research proposal, the responsible staff identifies the country or countries in which the project might be carried out and the organizations who are able and willing to cooperate. These organizations are, in such circumstances, most likely to be located in the developing countries themselves, although in some cases there may be tripartite arrangements in which there is collaboration between the Bank and research organizations in both developed and developing countries. But it is the present policy of the Research Committee to entertain proposals for collaboration solely with institutions in developed countries, only when there is a special expertise which the Bank wishes to tap, as for example in the Site and Services project (RPO 316)1/.

13. Although the initiative for a project usually comes wholly from within the Bank, particular projects may well result from discussions between researchers or other individuals in a developing country and the staff of the Bank. Indeed, the process can be even more complex, if other developed

1/ Each project has an identifying "RPO" number, which is shown in the text here and subsequently for ease in cross-references to the Appendix Tables and the project descriptions in Abstracts of Current Studies.

country institutions or international agencies (e.g. FAO) are also involved. The main point is that research projects are carried out largely because of the Bank's substantive interest in them and collaboration stems from that fact. The Bank does not undertake core support for research institutions nor does it have institution-building as a primary objective, though it regards the latter as an important by-product. Fortunately, several donor agencies do regard institution-building as one of their primary objectives and have substantially greater research funds at their disposal.

14. Relations with donor agencies fall into two categories: financial collaboration and collaboration in the furtherance of international communication. Some projects are simply too large for the Bank to undertake, unless it were willing to use a very substantial proportion of the budget for a limited number of projects and so freeze out many smaller projects. Any project which requires the generation of data is apt to be costly. In most cases of this kind, the collaboration of other donors has been sought. The prime example has been the project on Substitution of Labor and Equipment in Civil Works (RPO 226). Expenditure proposed for Phase III of this project during the fiscal years 1974 to 1977 is estimated at approximately \$2½ million with contributions from the governments of Canada, Denmark, Finland, Germany, Japan, Norway, Sweden, the United Kingdom and the United States; the Bank's own contribution would be about 23% of the total for Phase III.

15. There are a few instances of "parallel financing", so to speak, of a project with contributions arranged from several sources at the outset (e.g. the employment studies being undertaken by CAMS - RPO 307), but they are the exception. Typically, the initiative for co-financing comes from the Bank itself and the task of fund-raising adds considerably to the administrative burden of staff members who also have substantive contributions to make to the project. This is especially true of projects spanning a number of years. A major topic for future discussion with donors may well be the co-financing of long-gestation projects with costly generation of data according to some agreed program rather than ad hoc as each project arises.

16. Initial efforts to promote communication have principally been devoted to the sponsorship of institutional conferences. In February 1974, the Bank joined with the Ford Foundation,

the International Development Research Centre, the Rockefeller Foundation and the U.S. Agency for International Development in sponsoring a conference on Social Science Research, with representatives from international agencies, national aid agencies and research institutions in the developing world. This meeting provided a useful overview of social science research on development and of the objectives of the principal agencies.[1/] The same five sponsors have continued to explore mechanisms for the exchange of information on research priorities and activities both in general and in particular subject areas. In addition, the Bank, which had co-sponsored a meeting arranged in Belgrade in September 1972 by the OECD for Directors of Development Research and Training Institutes, co-sponsored a similar meeting in Abidjan in August 1974.

III. THE CURRENT RESEARCH PORTFOLIO

17. The budget for External Research is $1,955,000 in FY75, which, in real terms, is the same as the budget of $1,745,000 in the previous fiscal year (FY74) and 8.5% higher than in FY73. The authorization is distributed over 63 research projects, most of which are continuations or extensions of research projects from previous years; there are 22 projects which are entirely new this year, and their authorizations amount to about a third of this year's budget.

18. A summary profile of the current research portfolio is presented in the Table below[2/]. Research on income distribution, agriculture and rural development absorbed a third of the expenditures in FY74; next in importance were population and human resources, industry, transportation and country economic analysis, each of which accounted for 12-13% of the total. In comparison with the previous fiscal year (FY73), a higher proportion of expenditures in FY74 was spent for research on income distribution, employment and industry; the share of transportation, development planning and country economic analysis declined correspondingly. In FY75 the pattern of expenditures is expected to be close to the guidelines in the Table below with the principal exception of transportation which will still be relatively high.

1/ The proceedings of the conference are published in The Social Sciences and Development, 1974.

2/ A complete listing of research projects financed since FY73 is shown in Appendix Table 1.

TABLE I

FUNCTIONAL PROFILE OF EXTERNAL RESEARCH PROGRAM

Percentage of Annual Expenditures

Category		FY72 Actual	FY73 Actual	FY74 Actual	FY75 Estimate	Guidelines FY75-78/1
I.	Development Policy & Planning					
	A. General Planning	14.8	7.3	0.5	-	1.0
	B. Income Distribution	2.4	7.2	16.3	18.9	14.0
	C. Growth/Country Economic Analysis/ Development Strategy	9.3	16.2	11.8	9.1	10.0
	Total I	26.5	30.7	28.6	28.0	25.0
II.	International Trade and Finance	0	1.0	2.9	4.3	4.0
III.	Agriculture and Rural Development	11.1	18.0	16.6	15.1	20.0
IV.	Industry	9.1	5.9	13.0	5.5	10.0
V.	Transportation	39.2	25.1	12.5	17.3	10.0
IV.	Public Utilities	6.8	8.3	7.4	5.3	5.0
VII.	Urbanization and Regional Development	4.2	3.4	4.4	4.1	10.0
VIII.	Population and Human Resources					
	A. Education	1.9	2.7	3.8	3.7	5.0
	B. Labor/Employment	0.3	4.4	8.8	8.3	5.0
	C. Population/Health	0	0.4	.8	5.9	5.0
	Total VIII	2.2	7.5	13.4	17.9	15.0
IX.	Other	0.7	0	1.2	2.5	1.0
	GRAND TOTAL	100.0	100.0	100.0	100.0	100.0

/1 As forecast in Table 2 of the Board paper on Bank Group Research, November 12, 1973. The figures here should be read as broad guidelines reflecting the Research Committee's views on sector priorities rather than as specific allocations year by year.

19. A description of each of the research projects is available in "World Bank Research Program: Abstracts of Current Studies". The following sections discuss the main components of the present research portfolio in more condensed form.

Income Distribution and Employment

20. It is widely recognized that the benefits of growth do not reach all segments of society equally and that direct redistributive measures as well as reorientation of growth strategies are necessary to benefit the poor. Aside from the political realities of policy making in this sensitive area, policy makers are frustrated both by the lack of theoretical structures that illuminate the links between growth and equity and by the poverty of data on the distribution of income. The Bank's research attempts to address both these needs.

21. There are four ongoing research projects whose main objective is to compile and analyze existing data. The earliest is the Size Distribution of Income (RPO 209) which extends efforts by the UN to compile and evaluate existing data on income distribution and identify broad cross-country patterns. The dissatisfaction with the available published tabulations of data has led to two subsequent research projects designed to study the original data more intensively. These projects are organized on a regional basis and are being undertaken in collaboration with ECLA and ESCAP (RPO 283, 308). We are also assisting ECIEL (a group of research institutions in Latin America) in investigating the patterns of income distribution in urban areas in Latin America, using data from previously completed household budget surveys (RPO 285). The data-oriented research projects will improve analysis of cross-country patterns and enable more precise identification of poverty groups, both rural and urban, in terms of their asset holdings, occupation, education and other demographic and socio-economic characteristics.

22. In addition to data collection, one needs a better understanding of the theoretical and empirical relationships between growth and equity to guide the formulation of policy in this area. A variety of research projects seek this goal. Two of the projects rely on multi-sector models that are designed to examine the consequences for the distribution of income of alternative packages of fiscal and monetary policies. These models are based on data from Brazil (RPO 269) and Korea (RPO 206). Work has also begun recently on

"Prototype Models for Country Analysis" (RPO 286), which attempts to devise a methodology for country analysis which will improve the Bank's understanding of distributional questions in country economic work.

23. There are other research projects which will analyze country experience intensively, but with simpler models. Employment and Income Distribution in Malaysia (RPO 294) has evaluated existing distribution patterns and poverty profiles and is now measuring the impact on the distribution of income of policies to improve employment. Another project (RPO 284) is exploring the links between growth, employment and the distribution of income in a cooperative study involving the Yale Growth Center and researchers in Taiwan, Colombia, and the Philippines.

24. It is premature to pass judgment on which of these various approaches will prove to be the most useful for the analysis and design of redistributive policies, and what combination we should strike in future research efforts in this area. We do feel, however, that more emphasis should be placed on the identification of specific groups of the poor such that one can design specific policies to alleviate their poverty. A beginning has been made in several research projects, some of which will be discussed in other sections. Research projects in agriculture and rural development attempt to learn more about small farmers and the behavioral and institutional obstacles which inhibit improving their productivity and incomes (RPO's 273, 289, 317 and 322). Other projects seek to define appropriate standards of design for site and service housing projects (RPO 316) and for the distribution of electricity (RPO 267) and to evaluate mechanisms for undertaking a nutrition improvement program in the context of a study of construction methods (RPO 315).

25. Another project with broad policy implications in this area is Distributive Impact of Public Expenditures (RPO 296) which will identify the beneficiaries of major government services and explore the factors determining the effective household demand for these services in Malaysia and Colombia.

26. An effective employment policy is an important component of policies to improve the distribution of income and assets. Employment Models and Projections (RPO 306) experiments with different techniques of projecting employment prospects so as to provide a basis for choosing the appropriate mix of measures that emphasize faster growth, more labor

intensive technology or changing the composition of final demand. This, like the study on Malaysia referred to above (RPO 294), will rely primarily on the use of input-output models to depict the structure of the economy.

27. A different approach is taken in a set of projects that investigate the workings of the urban labor market (RPO's 243, 245, 290). These projects variously use surveys of households, school-leavers, employers and workers in the modern and informal sectors to examine the earnings and occupation structure of the urban labor force. They attempt to consider the number of earners and dependents in household units so that the findings can be used in designing policies to improve the productivity and incomes of the urban poor. A preliminary step in the development of these studies was the survey of the determinants of rural-urban migration completed under a previous research project Economic Models of Internal Migration (RPO 240).

28. The external research budget is also providing some support for a number of studies in Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand being undertaken under the supervision of the Committee for Asian Manpower Studies (CAMS). These research projects will examine the employment implications of trade policies, migration determinants and the absorption of labor in services and other selected sectors of the economy.

29. A number of countries have tried a more direct method of raising the incomes of the poor -- public works programs which provide employment opportunities for those without jobs and with minimal skills and training. Rural and Urban Public Works (RPO 275) surveys the characteristics and effectiveness of such programs in 15 developing countries, attempting to identify the most promising organizational, administrative and financial arrangements.

Agriculture and Rural Development

30. Several major studies of rural development are very nearly completed, and summaries of their findings are in the process of preparation or publication. The Africa Rural Development Study (RPO 218) has completed the review of projects in Africa, and drawn a number of lessons concerning the design of rural development projects. The findings have already been incorporated into the recent policy paper on rural development, (R74-245, December 5, 1974), and the final report is being prepared for publication. Several papers have been written concerning the use of programming models for the evaluation of

agricultural investment and pricing strategies in Portugal and Brazil (RPO 213) and in Mexico (RPO 216); the final reports are nearing completion.

31. The studies of farm mechanization in Pakistan and India (RPO's 212, 214 plus 250, which has been completed) attempt to ascertain the impact of mechanization on farm employment and incomes. The reports from the collaborating research institutes in India will form a major input into an Issues Paper on the subject, scheduled to be completed later this year.

32. Most of the more recent research in this area focuses on the special characteristics of small farmers. Rural Development in Northeast Brazil (RPO 273) attempts to provide the analytical framework and the data for assessing the interaction of farm size, tenure arrangements and technology diffusion in determining the incomes of rural households1/. When completed, the research should have a significant impact on the identification and design of rural development projects in Northeast Brazil (and possibly elsewhere as well). A joint study with the FAO has recently begun in Tanzania to estimate the potential growth of the productivity of small farmers in various agro-ecological zones (RPO 322). If successful, similar studies will be undertaken in other countries to provide the basis for specific programs to improve the incomes of small farmers. Another study in progress (RPO 289) analyzes the effects of government policies, institutional arrangements and socio-economic conditions on smallholder agriculture in three regions of Yugoslavia and the linkages between farms of different sizes.

33. The risks of failure are relatively greater in rural development projects than in our more traditional investments because we know relatively little about socio-economic structures in rural communities and how these structures would respond to different kinds of intervention. Analytics of Change in Rural Communities (RPO 317) will use available village studies and information from rural development projects to identify key socio-economic characteristics of rural communities that are of primary significance in the design of rural development projects.

1/ The sampling frame and the data generated by this research project is also being used in another project Economic Aspects of Household Fertility (RPO 299).

34. Other research projects in this area are concerned with land reform (RPO 280), the determinants of rural savings propensities (RPO 304) and the potential for increasing the supply of foodgrains in Asia (RPO 321). The latter research project will attempt to fill a serious gap in present research on the world food crisis by systematically collecting information on factors constraining an increase in foodgrain production in the major deficit region. Projects in areas related to rural development which are described elsewhere in this report include studies on feeder roads (RPO's 229, 271, 314) and village electrification (RPO 238). One of the completed projects is the study of international data on costs and outputs of agricultural research and the contribution of that research to crop yields (RPO 215).

Urbanization

35. Research on urbanization is mainly concerned with improving the data base, assessment of land use policies and some specific problems in the public utility, transport and housing sectors.

36. Two projects on urban data are nearing completion. Urban Data Needs (RPO 241) is developing a framework for comparative urban data systems and will present results for four cities; Urban Public Finance (RPO 270) will analyze local revenue and expenditure patterns in eight cities. Building on a study of the techniques of appropriating land value increments for public use (Working Paper No. 179), Urban Land Use Policies (RPO 298) will evaluate urban land control measures, the sources of urban land price increases and the role of urban land taxation.

37. Several recent projects are concerned with problems of the design of urban services that the Bank might finance. Investments in developing countries are often designed to standards of reliability and convenience that are too high for countries where incomes are low and capital is scarce. This is a serious problem in urban projects and is the concern of two recently approved research projects. Standards of Site and Services Projects (RPO 316) will consolidate cost data for alternative design standards for site and service housing projects; another project (RPO 267) does the same for urban electricity distribution systems. The supply of water to poor urban areas, usually through standpipes, involves a lot of waste when the pipes are left unattended and run continuously.

The project Reduction of Waste Water from Public Hydrants (RPO 312) will identify and evaluate alternative techniques of controlling such waste which can be used in future investments in low-income rural areas and urban fringes.

38. A major new project is the study of the effectiveness of measures to reduce urban traffic congestion (being financed jointly with the UN Environmental Program). Singapore has undertaken a comprehensive program of urban congestion pricing and physical restraints on peak-hour down-town traffic. This provides an opportunity to test the validity of behavioral travel models and increase our ability to evaluate alternative traffic restraint policies and schemes (RPO 320). The preparation of this research proposal was aided by a preliminary survey of information in this area (RPO 234).

Planning, Growth Processes and Country Economic Analysis

39. The principal research study in this area is the International Comparison Project (RPO 268) whose aim is developing and testing methodologies for the international comparison of economic aggregates without relying exclusively on official exchange rates, which do not satisfactorily reflect the relationships between national price levels. On completion of this project in 1978, we will have detailed data for about 32 countries which can then be used as a basis for evaluating shortcut methods for international comparison, which are being developed for application to a large number of additional countries. The project is being executed by the University of Pennsylvania in collaboration with the United Nations Statistical Office and a number of national statistical units. It has had support from other official agencies, including contributions from the governments of Germany, Netherlands, United Kingdom and United States during the current fiscal year.

40. Another project which is smaller in scale but to which we attach considerable significance is Prototype Models (RPO 286). The study is intended to improve our modelling methodologies for country economic analysis, especially of problems such as the effects of alternative development strategies or employment creation or income distribution. The research project on the methodology of Project Appraisal (RPO 208) is nearing completion. It has produced a number of studies which have proved useful in suggesting improvements in Bank practice which are now being tested.

41. Projects in this category which are almost completed are the second case study of multi-level planning methods (in the Ivory Coast, RPO 204) and the application of new estimation procedures for the study of household savings and expenditure patterns (RPO 203); the survey of planning models (RPO 210) has been completed and will be published very shortly. Also recently completed is the inter-country and inter-temporal analysis of structural changes (RPO 205) being published in the book Patterns of Development 1950-1970.

Industry and Trade

42. The principal research projects in this area evaluate incentive policies to promote industrialization and elaborate the methodology for investment planning in the manufacturing sector.

43. Two research projects undertake a detailed analysis of industrial incentive schemes in groups of countries at different stages of development. Development Strategies in Semi-Industrial Countries (RPO 201) examines export-incentive and import protection measures in countries whose industrial sector is relatively well developed; Industrial Policies and Economic Integration in West Africa (RPO 287) undertakes a similar analysis for countries which are heavily reliant on the export of primary products. The experience of several Latin American and a few other countries in the promotion of exports will be the subject of papers to be discussed at a seminar that is being organized jointly with ECLA (RPO 310). One aspect of this subject -- the problems faced in adjusting to export expansion by LDC's -- is discussed in a series of papers under a completed research project Industrialization and Trade Policies in the 1970's (RPO 220). This research will assist the Bank in its evaluation of development strategies and prospects of member countries.

44. Programming in the Manufacturing Sector (RPO 224) uses the methodology of process analysis to address a number of problems in connection with the selection of scale, timing, location and technology of industrial projects. A detailed manual is being prepared to assist Bank operating departments in project selection. A companion research project applies this methodology to the mechanical engineering industry, where there is relatively more scope for alternative production techniques and product differentiation, and studies the possibilities for efficient substitution of labor for capital (RPO 223).

45. The studies of the determinants of industrial capacity utilization (RPO's 225, 295) are nearing completion and a survey of the organizational aspects of programs for financing small-scale industries (RPO 277) has been completed in collaboration with the Swedish International Development Authority.

46. Recently approved research projects in this area are World Commodity Models (RPO 309) which will provide a systematic framework for the compilation of data and analysis of selected commodity markets, including energy; and Patterns of Industrial Development (RPO 305) which will analyze structural changes in industrial production, trade and employment in about 100 countries. Two major commodity studies have been completed in the past year on jute (RPO 211) and cocoa (RPO 281), both of which have been useful in formulating price projections and policies in this area.

Transportation

47. The major research effort in this area continues to be on the Substitution of Labor and Equipment in Road and Civil Works Construction (RPO 226) and Highway Design Standards (RPO 227). The former study is now in its third phase, seeking to develop and demonstrate efficient intermediate techniques for civil construction. The conclusion from the first two phases of the study was that labor intensive methods as they are traditionally practised were not competitive with modern equipment methods for most conceivable sets of factor prices. The Highway Design Standards study is in its second phase, generating primary data for the use of a simulation model for the evaluation of alternative designs.

48. In 1971 the Bank initiated a research program to study the developmental impact of feeder road investments in rural areas, using socio-economic surveys before and after the construction of the road. The first two studies (in Yemen Arab Republic (RPO 229) and Ethiopia (RPO 271)) now await construction of the road. This year we have added a third study (in Malagasy (RPO 314)) which can go straight to the final stage since the baseline survey and road construction have been completed. This series of projects will develop systematic information for the evaluation of rural development projects involving feeder roads.

49. Other recent additions to the research program in this area are the study of Urban Traffic Restraint in Singapore (RPO 320, see para. 38) and the Economics of Containerization (RPO 313). The latter will set up an economic framework for analysis of port investment, pricing and fiscal decisions,

studying the apportionment of costs and benefits between foreigners and the domestic economy.

Public Utilities

50. The principal research project in this area is Village Electrification (RPO 238). The purpose of the study is to develop criteria for evaluating the scale and composition of village electrification programs in the context of the Bank's rural development activities. The study is particularly concerned with the measurement of the benefits of electrification, taking account of the effects on agro-industrial output and the relation of electricity to other projects providing rural infrastructure. This study has been the basis for the Issues Paper "Issues in Rural Electrification" (Secretary's memorandum M-74-636 of September 12, 1974).

51. The analyses of pricing and investment decisions in power (RPO 239) and telecommunications (RPO 276) continue to be a significant part of the research program in public utilities. Two research projects on water supply have been completed (RPO's 236, 237) and current projects include studies in the power and rural telecommunications sectors (RPO's 239 and 276). Recently, the research effort is being extended to include examination of the trade-off between efficiency and other objectives such as income distribution and constraints such as institutional factors.

52. Two other research projects, Reduction of Waste Water from Public Hydrants (RPO 312) and Standards of Reliability of Urban Electricity Supply (RPO 267) have been discussed in para. 37 above.

Population/Health

53. The two research projects in population are both concerned with improving an understanding of the determinants of fertility and the economic costs and benefits of larger families in rural households. One project (RPO 299) tests hypotheses about the relationships between family size, schooling and employment in low-income rural families, using the large amount of data being generated in Northeast Brazil in another research project (RPO 273). The other project Population Growth and Rural Poverty (RPO 302) consists of comparative anthropological studies in Asia and Africa. This project is also being financed by the Population Council and the Overseas Development Ministry (UK).

54. Research on the relation between iron deficiency and worker productivity has already been undertaken as a byproduct of the study on labor substitution in civil construction (RPO 226) (Bank Staff Working Papers Nos. 152 and 175). A recently approved project (RPO 315) will broaden these studies to include other types of nutritional deficiencies and evaluate mechanisms for undertaking a nutritional improvement program.

Education

55. The four projects in this area are concerned with different problems. One project (RPO 278) deals with project evaluation methodology and education attainments; it aims at producing a widely acceptable methodology for evaluating learning taking place in Bank-assisted educational institutions. The methodology will be tested in East Africa and an important component of the project is the training of African educators in the evaluation methodology. Other research projects include an investigation of alternative mechanisms for the financing of education with emphasis on the social equity aspects of education expenditure and finance (RPO 244); an empirical analysis of the effects of schooling on workers' productivity and earnings (RPO 291); and a survey of educational reforms to assess their effectiveness and impact on social equity (RPO 319). Two useful surveys have been produced by completed research projects: one on non-formal education (RPO 251) and another on industrial training schemes (RPO 246).

IV. ADMINISTRATION OF THE RESEARCH PROGRAM

56. The Research Program in its present form was initiated in FY72. Since then, the reputation of the research work of the Bank has been greatly enhanced; the calibre of the staff executing or supervising this work has attracted visiting scholars from the academic world. A landmark in this growing reputation was the winning of the Lanchester prize awarded by the Operations Research Society of America for the best English-language contribution in operations research. The book which shared the 1973 award was Multilevel Planning: Case Studies in Mexico, edited by Louis Goreux and Alan Manne (RPO 216).

57. Despite these successes in the short history of the program, it is salutary at this juncture to do some stocktaking of past activities in order to see whether some modifications

of present procedures should be considered. Before doing this, a short description of the present administrative arrangements may be helpful.

58. As a general rule, research projects are initiated by staff members and selected through a formal review process. Final selection of proposals for research projects is made by the Vice President, Development Policy, on the advice of the Research Committee which has broad representation from the operational and research departments of the Bank, acting, however, in an individual capacity. Before being reviewed by the Research Committee, each proposal is commented on by interested departments and then examined by a small panel of staff members, with a member of the Research Committee as chairman. There are several separate panels, to each of which is assigned two or three proposals. These are discussed in detail with the sponsors of the proposals.1/

59. It is useful to bear in mind a number of tests which proposals made for inclusion in the Research Program should satisfy. It goes without saying that the first test is whether the execution of the project is likely to be technically competent. The second is whether the project can be expected to contribute, directly or indirectly, to problem-solving and decision-making: in other words, whether it is operationally relevant either to the Bank or its member countries. A third is whether the project is designed to exploit the Bank's comparative advantage; in other words, is the Bank the best place to carry out the project? Fourth, there is the difficult question of opportunity cost; does the project proposed have higher priority than other alternatives, not merely those submitted, but others which might have been submitted? Finally, there is the question of dissemination; has provision been made for making the results available in useable form to the relevant audiences both inside and outside the Bank?

60. At the cost of some oversimplification of the range of possibilities, two possible sources of initiative for the creation of a research proposal can be distinguished. On the one hand, an operational problem may be perceived by those

---

1/ Research proposals from outside institutions or individuals are the exception; they have to be submitted to the Research Committee by Bank staff and are subject to the same review procedures as internal proposals.

who have to deal with it. Once the questions are properly articulated, it is then necessary to formulate a research project specifically to answer or help in answering them - by no means a simple task. On the other hand, a research project may be generated, not by the ultimate user in the first instance, but by a researcher who has particular analytical skills at his command and who perceives a research problem which interests him. Research originating in this way will then be faced with the question whether it can be applied in an operational context, and, if so, how and where. Thus, to use a convenient market analogy, research proposals can originate from the demand side (the ultimate user) or the supply side (the researcher). The former will tend to be of direct application but possibly narrow in scope. The latter may be broader in conception, but their applicability more speculative.

61. One characteristic of the Research Program, as initially constituted, is that it tended to be dominated from the supply side. Proposals for research have come, typically, from those who will carry out the research or at least have a direct role in its execution. This does not mean that such projects are conceived in isolation; indeed, the contrary has normally been the case. But it does mean that a possible source of promising research proposals has not been fully exploited. This is because those who have to deal with operational problems often do not have the time and the particular expertise required to articulate them in such a way that they take the shape of an acceptable research proposal. In other words, there is apt to be a missing link from the demand side.

62. It would be an exaggeration to suggest that the link is missing altogether. It is clear from Section III that there are a number of projects which derive from operational problems. One obvious example is the study of rural development projects in Africa (RPO 218), which derives directly from an operational need to examine past projects and extract what lessons are possible for future design. There are others in the agricultural field which also have an operational origin but are only at an early stage. Virtually all the projects in the fields of transportation and public utilities described in Section III have emerged as a result of perceived needs in operational work in these sectors.

63. The fact that a project originates with a clearly perceived operational problem is, normally, a sufficient condition for considering it to be operationally significant but it is not a necessary one. Several of the research projects in the manufacturing sector (e.g. RPO 224) began as, so to speak, "pure" research, but the techniques developed are now being adapted for use in an operational context in cooperation with the staff working on projects in this sector. Much the same can be said of the research project on the Agricultural Sector in Mexico (RPO 216) which has been carried out in close collaboration with researchers in Mexico. The results have been extensively used by the Mexican Government and requests are being received for adaptation of the model to other countries. The data collected in the course of the project on Rural Development in Northeast Brazil (RPO 273) in collaboration with several Brazilian institutions is already proving operationally useful.

64. In fact, the notion of operational relevance is, to some extent, a function of time. It may well be that the results of a particular piece of work will only become operationally useable after a second round of investigations into the implications of the results has taken place. It is possible, for example, that this will be the case with the International Comparison Project (RPO 268) on the methodology of national income comparisons in ways which eliminate the use of exchange rates. The voluminous data generated in order to achieve the primary objective could become the basis for further research on the development process.

65. A desirable mix would include a range of research projects, including some of short and some of long gestation from the time they are initiated to the time when the results are applied in an operational context. While all research projects should be addressed ultimately to operational needs in the Bank or outside, there is a case for including some research endeavors that have a long gestation period. This mix would correspond to a particular comparative advantage of the Bank, namely the variety of disciplines on its staff, especially if their skills can be exploited in an interdisciplinary way.

66. The Bank is not unique in facing the rather intractable problem of forging links between the producers and users of research[1]. There have, as already suggested, been some

---

1/ A study of the effectiveness of dissemination methods for research is currently under way in the OECD.

effective efforts to solve it within the Bank. The more successful ones have owed much to the establishment of good, though informal, internal communication between operational and research personnel. The most promising line of attack, therefore, is to encourage the extension of this kind of communication. This line is now being followed by holding a series of informal discussions between small groups of operational staff and researchers, at which the difficulties on both sides can be aired. When some experience has been gained from these discussions, more formal steps will be contemplated, if necessary. Meanwhile, it is intended that the Research Committee do more in the future than approving or rejecting a research proposal. When a problem is presented to it in a form which is not acceptable as a research proposal, the Committee will be asked to assess its importance from an operational point of view and to make recommendations as to the appropriate follow-up in order to improve it, where appropriate.

67. If more attention can be paid to the demand side, this should help to satisfy some of the other tests mentioned earlier. Research projects originating from this side have a good chance of contributing to the decision-making process, not only in the Bank, but outside. They will also tend to exploit the Bank's comparative advantages, which include access to data, continuous involvement in the carrying out of investment projects in developing countries, and worldwide connections as a result of its operations. The close working relationship between Bank staff and policy makers in developing countries provides an opportunity for researchers in the Bank to observe closely, and respond to pressing operational needs. Research projects which have an operational origin and are subsequently applied to operational problems are likely to be looked at in terms of their long-term evolution, rather than as one-shot affairs. Bank projects (i.e. physical ones) can be utilized for testing application and for data generation. Iterative improvements in technique can be contemplated over time.

68. Research projects with an operational origin are also likely to be more effectively disseminated, at least within the Bank in the first instance. Indeed, the process, though it may not be automatic, is likely to have a good deal of built-in impetus. If the existence of an operational problem is the genesis of a research project, those who perceived the problem in the first place are likely to press for the results of a research project in a form that they can use.

69. The problem of dissemination is probably more critical in research projects emanating from the research of the supply side. Isolated research projects, even if they are well carried out and have a message to convey, may fail if the interests of the ultimate user are not clearly in mind and catered to, whether in the Bank or not. The Bank does have a well established system of discussing research results in seminars and subsequently publishing them in working papers or books. But, dissemination does not just mean publication or giving seminars. People with limited time to spare are not going to attend seminars or read research papers, simply on the off chance that there might be something there of use to them. Dissemination also requires taking positive steps to attract the attention of those who might be expected to use the results of the research, but who have not got the time and possibly the technical knowledge to plough through documents which are essentially addressed to technicians.

70. A number of projects in the research program so far are being executed in such a way that the users receive adequate guidance through well-conceived devices such as users' manuals1/. However, this has not always been the case. Ideally, the concept of a channel of communication to the ultimate user should be stressed at the design stage. Steps are being taken to identify the ultimate user and incorporate plans for dissemination into the research proposal itself. An example of this is Prototype Models for Country Analysis (RPO 286) which is a joint effort by the Development Research Center and the Comparative Analysis and Projections Division. Founded on the Bank's recent research on development strategies, the aim is to produce a working tool for the Bank's regional offices for regular country analysis.

71. This discussion of the merits of proposals emanating from the demand side should not suggest that proposals from the supply side do not also have some significant advantages. After all, an essential requirement for good research is the enthusiasm of the researchers themselves. What we are arguing for is a balance between the two possible origins of research

---

1/ e.g. a handbook on engineering and cost data on alternative designs of site and service projects (RPO 316). Other examples of dissemination mechanisms are policy/issues papers that frequently draw heavily on research, and departmental notes addressed to operational departments such as those put out by the Public Utilities Department in Central Projects Staff.

proposals. Ultimately, closer working relationships between research producers and users in the preparation of research proposals may well eliminate this distinction altogether.

72. In sum, while the research program during its short life up to this time may be regarded as a reasonably successful effort, there are still problems of communication which require attention. The Bank, precisely because it is an institution combining operations and research, is in a better position than others to make further progress towards a solution. But it will take time and continuous effort.

WORLD BANK RESEARCH PROGRAM

Table 1: STUDIES FINANCED SINCE FY1973
(US$'000)

Category/Title	Program Code (RPO)	Executing Department*	FY1973 (Actual)	FY1974 (Actual)	FY1975/1 (Authorized)
I. Development Policy & Planning					
A. General/Planning					
Country Programming Study: Chile	202	DRC	23.9	-	-
Study in Multi-Level Programming: Ivory Coast	204	DRC	82.2	-	-
Survey of Economy-wide Planning Models	210	DRC	18.5	10.1	-
Sub-total			124.6	10.1	-
B. Income Distribution					
Short-run and Long-run Influences upon Income Distribution	206	DRC	68.6	45.3	20.0
Size Distribution of Income	209	DRC	31.8	-	-
Growth and Income Distribution in Brazil	269	DRC	20.9	60.2	25.0
Evaluation of Latin American Data on Income Distribution	283	DRC	-	36.2	41.5
Growth Employment and Size Distribution of Income	284	DRC	-	70.0	75.2
Urban Income Distribution in Latin America	285	DRC	-	30.0	78.0
Employment and Income Distribution in Malaysia	286	DRC	-	15.8	31.0
Distributive Impact of Public Expenditures	296	ECD/DRC	-	36.9	92.0
Evaluation of Asian Data on Income Distribution	308	DRC	-	-	39.5
Sub-total			121.3	294.4	402.2
C. Growth/Country Economic Analysis/ Development Strategy					
Development Strategies in Semi-Industrial Countries	201	DRC	37.3	-	-
Patterns of Demand and Savings in the Development Process	203	DRC	28.3	42.6	22.5
Cross-Section Analysis of Development Process	205	EAP	32.4	14.4	-
International Models	207	DRC	14.8	-	9.0
Project Appraisal and Shadow Prices	208	VPS	33.4	35.3	26.0
Employment and Capital-Labor Substitution	256	DRC	18.9	-	-
International Comparison Project	268	EAI	78.5	87.0	80.0
Analysis of Income and Consumption (ECIEL)	274	DRC	30.0	35.0	-
Prototype Models for Country Analysis	286	DRC/TAP	-	-	56.0
Sub-total			273.6	214.3	193.5
Total - Section I			519.5	518.8	595.7
II. International Trade and Finance					
Prospects for Jute and Competition from Synthetics	211	IPI	17.2	-	-
Economic Development of East and Southeast Asia	275	AEN	-	26.5	25.8
Comparative Analysis of Resource Allocation in Cocoa Production	281	EAP	-	21.8	-
Seminar on Inflation and Commodity Prices	282	EAP	-	4.5	-
World Commodity Models	305	DRC/EAP	-	-	25.0
Promotion of Non-Traditional Exports	316	LCN	-	-	40.0
Total - Section II			17.2	52.8	90.8
III. Agriculture and Rural Development					
Reappraisal of Credits for Financing Farm Mechanization in Pakistan	212	ECD	12.4	-	-
Evaluation of Alternative Methods for Specifying Agricultural Sector Development Strategies: Portugal & Brazil	213	AGP	23.5	14.1	-
Agriculture Mechanization Study in India	214	AGP	50.6	31.1	7.5
Agriculture Research and Productivity Changes	215	ECP	16.7	-	-
Agricultural Sector in Mexico	216	DRC	21.2	25.6	10.5
Rural Development in Africa	218	ECD	145.8	12.6	-
Mechanization in India: Its Extent and Effect on Hired Labor	250	ASA	5.5	-	-
Rural Development in Northeast Brazil	273	DRC	28.7	133.0	97.2
Land Reform in Latin America	288	ECD	-	35.9	11.3
Development Strategies for Smallholder Agriculture in Yugoslavia	289	AGP	-	27.4	11.1
Evaluation of Lilongwe Land Development Program	293	ECD	-	21.4	-
Rural Savings and Investment	304	ECD	-	-	12.0
The Analytics of Change in Rural Communities	317	DRC	-	-	57.0
Foodgrain Production in Asia	321	AGP	-	-	50.0
Raising the Productivity of Small Farms	322	AGP	-	-	30.0
Agricultural Commodity Projections	323	EAP	-	-	35.0/6
Total - Section III			304.4	301.1	321.6
IV. Industry					
Industrialization and Trade Policies for the 1970's	220	ECD	18.2	-	-
Export Promotion and Preferences: India	221	ECD	16.0	-	-
Scope for Capital-Labor Substitution in the Mechanical Engineering Industry	223	DRC	31.2	17.7	13.9
Programming in the Manufacturing Sector	224	DRC	31.8	71.5	6.5
Industrial Capacity Utilization in Selected Latin American Countries	225	EPP	-	50.0	-

Category/Title	Program Code (RPO)	Executing Department*	FY1973 (Actual)	FY1974 (Actual)	FY1975/1 (Authorized)
IV. Industry (continued)					
Financing of Small Scale Industry	277	ECD	-	34.7	-
Industrial Policies and Economic Integration in West Africa	287	DRC	-	27.3	54.5
Industrial Capacity Utilization	295	ECD	-	35.0	22.6
Patterns of Industrial Development	305	ECD	-	-	20.0
Total - Section IV			99.2	236.2	117.7
V. Transportation					
Substitution of Labor and Equipment in Civil Works	226	TRU	156.4	137.7	150.0
Highway Design Study: Phase II	227	TRU	190.3/2	51.6	50.0
Measurement of Road Width/Vehicle Speed Relationship	228	TRU	-	1.9	-
Yemen Arab Republic Feeder Road Study	229	TRU	14.9	29.4	6.6
Impact on Port Congestion of Ship Rescheduling	230	TRU	4.8	-	-
Promotion of Road Construction Industry in Developing Countries	231	TRU	30.2	-	-
Compilation of Highway Design Standards	232	TRU	0.8	0.5	-
Railway Traffic Costing Study	233	TRU	8.7	-	-
Ethiopia Feeder Road Study	271	TRU	18.5	2.4	- /3
Economics of Containerization	313	TRU	-	-	20.0
Malagasy Feeder Road	314	TRU	-	-	32.0
Urban Traffic Restraint (Singapore)	320	TRU	-	-	110.0
Total - Section V			424.6	223.5	368.6
VI. Public Utilities					
Property Values and Water Supply	236	PEP	3.3	-	-
Village Water Supply	237	PEP	18.5	-	-
Analysis of Problems and Issues in Village Electrification	238	PBP	103.3	81.6	13.0
Pricing and Investment in Electricity Supply	239	PEP	16.0	14.8	7.0
Standards of Reliability of Urban Electricity Supply	267	PBP	-	24.5	29.0
Pricing and Investment in Telecommunications	276	PBP	-	13.7	13.0
Public Utility Pricing and Investment	311	PBP	-	-	30.0
Reduction in Waste Water	312	PBP	-	-	20.0
Total - Section VI			141.1	134.6	112.0
VII. Urbanization and Regional Development					
Urban Transport and the Automobile	234	TRU	12.3	-	-
Economic Models of Internal Migration	240	ECD	8.1	-	-
The Urban Data Needs of the IBRD	241	ECD	4.5	11.4	-
Urban Public Financing and Administration	270	ECD	32.2	32.3	1.9
Urban and Regional Subsystems in West Malaysia	297	ECD	-	12.8	0.9
Urban Land Use Policies: Taxation and Control	298	ECD	-	23.0	-
Urbanization Standards for Site and Services Projects	316	TRU	-	-	50.0
Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	318	ECD	-	-	35.0
Total - Section VII			57.1	79.5	87.8
VIII. Population and Human Resources					
A. Education					
Professional Structure in Southeast Asia	242	ECD	12.0	-	-
Student Loan Schemes	244	EDP	2.7	18.0	15.0
Cost Effectiveness of Alternative Learning Technologies in Industrial Training	246	EDP	30.7	7.6	-
Project Evaluation Methodology: Education Attainments	278	EDP	-	25.0	40.0
Benefits of Schooling for Workers	291	ECD	-	17.6	10.0
Economic Development and Education Reform	319	ECD	-	-	14.0
Sub-total			45.4	68.2	79.0
B. Labor and Employment					
Labor Market in Malaysia	243	ECD	10.9	11.6	20.3
Labor Force Participation - Income and Unemployment	245	ECD	0.2	18.5	36.6
Costa Rica Unemployment Survey	247	ECD	10.9	-	-
Rural and Urban Public Works	275	ECD	52.9/4	101.2	52.0
Labor Market in a Rapidly Growing Economy	290	ECD	-	27.9	4.1
Employment Models and Projections	306	ECD	-	-	40.0
Council for Asian Manpower Studies	307	ECD	-	-	25.0
Sub-total			74.9	159.2	178.0
C. Population/Health					
Economic Issues of Health	248	ECD	6.7	-	-
Economic Aspects of Household Fertility Behavior & Labor Supply in N.E. Brazil	289	ECD	-	15.7	50.4
Population Growth and Rural Poverty	302	ECD	-	-	22.0
Maximizing Usefulness of Household Surveys	303	ECD	-	-	17.5
Effects of Health and Nutrition Standards on Worker Productivity	315	TRU	-	-	35.0
Sub-total			6.7	15.7	124.9
Total - Section VIII			127.0	243.1	381.9

Category/Title	Program Code (RPO)	Executing Department*	FY1973 (Actual)	FY1974 (Actual)	FY1975/1 (Authorized)
IX. Other/5			22.6	20.9	55.0
Grand Total			1,712.7	1,810.3	2,131.1

/1 Research Committee authorizations as of January 1975. Authorizations include overprogramming to allow for normal lags between authorizations and disbursements. The FY1975 budget authorization is $1,951,000.
/2 Includes some charges carried over from 1972.
/3 After FY1974, project RPO 271 is being financed from IDA Credit No. CR 416-ET, July 5, 1973.
/4 Project RPO 275 was financed from the general contingency budget in FY1973.
/5 Includes small expenditures on discontinued projects, studies within the country concentration program and provision for travel and conferences.
/6 Project RPO 323 is being financed from the general contingency budget in FY1975.

Note: The above figures include expenditures on (i) external consultants; (ii) travel; and (iii) data processing but not salaries of Bank staff.

*Department Codes

Development Policy Staff
DRC - Development Research Center
ECD - Development Economics Department
EAP - Economic Analysis and Projections Department

Central Projects Staff
AGP - Agriculture and Rural Development Department
NDP - Industrial Projects Department
TRU - Transportation and Urban Projects Department
PBP - Public Utilities Department
EPD - Education Department
VPS - Projects Advisory Staff

Regions
LCN - Latin America and the Caribbean Regional Office
AEN - East Asia and Pacific Regional Office
ASA - South Asia - Country Program Department

APPENDIX

Table 2: RESEARCH COMMITTEE MEMBERS

H. B. Chenery, Vice President, Development Policy

B. Balassa, Consultant, Development Research Center

B. A. de Vries, Chief Economist, Latin America and the Caribbean Regional Office

H. Hughes, Deputy Director, Development Economics Department

A. Karaosmanoglu, Chief Economist, Europe, Middle East, and North Africa Regional Office

B. B. King, Research Adviser, Development Policy Staff

E. Lerdau, Assistant Director, South Asia Regional Office, Projects Department

H. Schulmann, Deputy Director, Programming and Budgeting Department

W. P. Thalwitz, Director, Western Africa Regional Office, Projects Department

H. G. van der Tak, Director, Projects Advisory Staff

H. Vergin, Assistant Director, East Asia and Pacific Regional Office, Projects Department

J. L. Waelbroeck, Adviser, Economic Analysis and Projections Department

M. Yudelman, Director, Agriculture and Rural Development Department

Table 1: COUNTRY REFERENCE OF EXTERNAL RESEARCH PROJECTS AND PARTICIPATING INSTITUTIONS/1

Country	Project Code	Title	Participating Institution(s)
Argentina	201	Development Strategies in Semi-Industrial Countries	
	268/2	International Comparison Project	Instituto Nacional de Estadistica y Censos, Buenos Aires
Bolivia	280	Land Reform in Latin America	Land Tenure Center, University of Wisconsin, Madison, USA
Brazil	213	Evaluation of Alternative Methods for Specifying Agriculture Sector Development Strategies	The Institute for Economics & Social Planning, Ministry of Planning & General Coordination, Brasilia
	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA Fundacao Getulio Vargas, Rio de Janeiro
	227	Highway Design Standards Study, Phase II	Transport Coordination Group (GEIPOT), Brasilia
	244	Student Loan Schemes	Fundacao IBGE - Instituto Brasiliero de Estadistica, Rio de Janeiro
	268/2	International Comparison Project	Vargas Foundation, Rio de Janeiro
	269	Growth and Income Distribution in Brazil	Federal University of Brasilia, Brasilia
	273	Rural Development in Northeast Brazil	Federal Ministry of Planning, Rio de Janeiro Superintendencia do Desenvolvimento do Nordeste (SUDENE), Recife Federal University of Pernambuco, Pernambuco
	290	Labor Markets in a Rapidly Growing Economy	Centro de Planejamento Regional (CEDEPLAR), Belo Horizonte
	299	Economic Aspects of Household Fertility Behavior and Labor Supply in Northeast Brazil	Superintendencia do Desenvolvimento do Nordeste (SUDENE), Recife
	318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	
Cameroon	218	Rural Development in Africa	
Chile	203	Patterns of Demand and Savings in the Development Process	
	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA. Instituto Latino-Americano de Planificacion Economica y Social, Santiago
	280	Land Reform in Latin America	Land Tenure Center, University of Wisconsin, Madison, USA
Colombia	201	Development Strategies in Semi-Industrial Countries	
	203	Patterns of Demand and Savings in the Development Process	
	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA
	244	Student Loan Schemes	Instituto Colombiano de Credito Educativo y Estudios Tecnicos en el Exterior (ICETEX), Bogota; Departamento Administrativo Nacionale de Estadistica (DANE), Bogota
	268/2	International Comparison Project	Departamento Administrativo Nacional de Estadistica, Bogota
	270	Urban Public Finance and Administration	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	284	Growth Employment and Size Distribution of Income	Economic Growth Center, Yale University, New Haven, USA
	295	Industrial Capacity Utilization	Fedesarrollo, Bogota
	296	Distributive Impact of Public Expenditures	Colombian Data Company, Bogota
	298	Urban Land Use Policies: Taxation and Control	Universidad de los Andes, Bogota
	318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	
Costa Rica	247	Costa Rica Unemployment Survey	University of Costa Rica, San Jose
	276	Pricing and Investment in Telecommunications	Instituto Costorricense de Electricidad, San Jose; University of Costa Rica, San Jose
Dahomey	224	Programming in the Manufacturing Sector	
El Salvador	238	Analysis of Problems and Issues in Village Electrification	Comision Ejecutiva del Rio Lempa, San Salvador; Universidad Centro Americana, San Salvador
Ethiopia	218	Rural Development in Africa	
	231	Promotion of Construction Industry in Developing Countries	
	271	Ethiopia Feeder Road Study	Institute of Development Research, Haile Selassie University I, Addis Ababa
Ghana	224	Programming in the Manufacturing Sector	
	287	Industrial Policies and Economic Integration in West Africa	
Guyana	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
India	214	Agriculture Mechanization Study in India	Indian Institute of Management, Ahmedabad Punjab Agricultural University, Ludhiana
	221	Export Promotion and Preferences: India	Trade Development Authority, New Delhi
	226	Substitution of Labor and Equipment in Civil Works	Scott, Wilson, Kirkpatrick & Partners, London, UK; Director General Border Roads, New Delhi; Ministry of Transport, New Delhi; Central Water & Power Commission, New Delhi; State Public Works Departments
	227	Highway Design Standards Study, Phase II	Central Road Research Institute, New Delhi
	241	The Urban Data Needs of the IBRD	
	245	Labor Force Participation - Income and Unemployment	Bombay University, Bombay
	250	Mechanization in India: Its Extent and Effects on Hired Labor	
	268/2	International Comparison Project	Central Statistical Organization, New Delhi
	270	Urban Public Finance and Administration	

Country	Project Code	Title	Participating Institution(s)
India (cont'd.)	302	Population Growth and Rural Poverty	Institute of Economic Growth, Delhi University, New Delhi; Institute of Development Studies, Sussex University, Sussex, UK
	315	Effects of Health and Nutrition Standards on Worker Productivity	
Indonesia	226	Substitution of Labor and Equipment in Civil Works	Directorate of Water Resources Development, Djakarta; Highway Department, Djakarta; Scott, Wilson, Kirkpatrick & Partners, London, UK
	242	Professional Structure in Southeast Asia	
	270	Urban Public Finance and Administration	
	315	Effects of Health and Nutrition Standards on Worker Productivity	Nutrition Research Institute, Bogor
Iran	231	Promotion of Construction Industry in Developing Countries	
	268[/2]	International Comparison Project	The Central Bank of Iran, Tehran
	277	Financing of Small Scale Industry	
Israel	201	Development Strategies in Semi-Industrial Countries	
	295	Industrial Capacity Utilization	Hebrew University, Jerusalem
Ivory Coast	204	Study in Multi-Level Programming: Ivory Coast	Ministry of Planning, Abidjan; Fonds d'Aide et de Cooperation, Abidjan; Food & Agriculture Organization, Rome
	287	Industrial Policies and Economic Integration in West Africa	Centre Ivoirien de Recherches Economiques et Sociales, Abidjan
Jamaica	241	The Urban Data Needs of the IBRD	
	270	Urban Public Finance and Administration	
Kenya	218	Rural Development in Africa	
	224	Programming in the Manufacturing Sector	
	227	Highway Design Study, Phase II	Ministry of Works, Nairobi; Transport & Road Research Laboratory, Crawthorne, UK
	228	Measurement of Road Width/Vehicle Speed Relationship	University of Nairobi, Nairobi; Transport & Road Research Laboratory, Crawthorne, UK
	231	Promotion of Construction Industry in Developing Countries	
	236	Property Values and Water Supply	Syracuse University Research Corporation, Syracuse, USA
	268[/2]	International Comparison Project	Central Bureau of Statistics, Nairobi
	302	Population Growth and Rural Poverty	Institute of Development Studies, Sussex University, Sussex, UK
	318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	
Korea	201	Development Strategies in Semi-Industrial Countries	Korea Development Institute, Seoul
	203	Patterns of Demand and Savings in the Development Process	The Bank of Korea, Seoul
	206	Short-run and Long-run Influences upon Income Distribution	Korea Development Institute, Seoul
	223	Scope for Capital-Labor Substitution in the Mechanical Engineering Industry	Korea Institute of Science & Technology, Seoul
	224	Programming in the Manufacturing Sector	Korea Institute of Science & Technology, Seoul
	231	Promotion of Construction Industry in Developing Countries	
	241	The Urban Data Needs of the IBRD	
	245	Labor Force Participation - Income and Unemployment	
	268[/2]	International Comparison Project	Bank of Korea, Seoul; Bureau of Statistics, Seoul
	270	Urban Public Finance and Administration	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	298	Urban Land Use Policies: Taxation and Control	Seoul National University, Seoul
	307	CAMS	Korea Development Institute, Seoul
Malagasy	314	Malagasy Feeder Road	Swiss Federal Institute of Technology, Zurich; Bureau Central d'Etudes pour les Equipements d'Outre-Mer, Paris, France
Malawi	218	Rural Development in Africa	
	293	Evaluation of Lilongwe Land Development Program	
Malaysia	236	Property Values and Water Supply	Syracuse University Research Corporation, Syracuse, USA
	242	Professional Structure in Southeast Asia	
	243	Labor Market in Malaysia	Survey Research, Kuala Lumpur
	245	Labor Force Participation - Income and Unemployment	
	268[/2]	International Comparison Project	Department of Statistics, Kuala Lumpur
	294	Employment and Income Distribution in Malaysia	Economic Planning Unit & Department of Statistics, Kuala Lumpur
	295	Industrial Capacity Utilization	
	296	Distributive Impact of Public Expenditures	Eastern Market Assessment Surveys, Kuala Lumpur; Dept. of Statistics, Ministry of Education, Ministry of Health, the Treasury, the Malaysia Govt., Kuala Lumpur
	297	Urban and Regional Subsystems in West Malaysia	
	307	CAMS	University of Malaysia, Kuala Lumpur

Country	Project Code	Title	Participating Institution(s)
Malaysia (cont'd.)	317	Analytics of Change in Rural Communities	Food & Agriculture Organization, Rome
Mali	218	Rural Development in Africa	
	287	Industrial Policies and Economic Integration in West Africa	
Mexico	203	Patterns of Demand and Savings in the Development Process	Secretaria de la Presidencia, Mexico City
	216	Agricultural Sector in Mexico	Secretaria de la Presidencia, Mexico City
	234	Programming in the Manufacturing Sector	
	267	Standards of Reliability of Urban Electricity Supply	Overseas Consultancy Service, London, UK
	280	Land Reform in Latin America	Centro de Investigaciones Agrarias, Mexico City
Nigeria	218	Rural Development in Africa	
	302	Population Growth and Rural Poverty	University of Nigeria, Nsukka; Institute of Development Studies, Sussex University, Falmer, UK
Pakistan	212	Reappraisal of Credits for Financing Farm Mechanization in Pakistan	Agricultural Development Bank, Karachi; University of Manchester, Manchester, UK
Peru	203	Patterns of Demand and Savings in the Development Process	
	225	Industrial Capacity Utilization in Selected Latin American Countries	Acuerdo de Cartagena, Lima; Center for Latin American Development Studies, Boston University, Boston, USA
	241	The Urban Data Needs of the IBRD	
	270	Urban Public Finance and Administration	
	280	Land Reform in Latin America	Fundacion para el Desarrollo Nacional, Lima; Land Tenure Center, University of Wisconsin, Madison, USA
Philippines	242	Professional Structure in Southeast Asia	
	268/2	International Comparison Project	National Census and Statistics Office, Manila
	284	Growth Employment and Size Distribution of Income	Economic Growth Center, Yale University, New Haven, USA
	295	Industrial Capacity Utilization	National Economic Development Authority, Manila
	307	CAMS	University of the Philippines, Manila
Portugal	213	Evaluation of Alternative Methods for Specifying Agricultural Sector Development Strategies	Center for Agricultural Economic Studies, Gulbenkian Institute, Lisbon
Republic of China	201	Development Strategies in Semi-Industrial Countries	
	242	Professional Structure in Southeast Asia	
	284	Growth Employment and Size Distribution of Income	Economic Growth Center, Yale University, New Haven, USA
	307	CAMS	
Senegal	224	Programming in the Manufacturing Sector	
	287	Industrial Policies and Economic Integration in West Africa	
Singapore	201	Development Strategies in Semi-Industrial Countries	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	320	Urban Traffic Restraint (Singapore)	Government of Singapore, Singapore; Survey Research Singapore Ltd., Singapore
Sri Lanka	302	Population Growth and Rural Poverty	Marga Institute, Colombo; Institute of Development Studies, Sussex University, Falmer, UK
Sudan	239	Pricing and Investment in Electricity Supply	
Tanzania	218	Rural Development in Africa	
	224	Programming in the Manufacturing Sector	
	278	Project Evaluation Methodology: Education Attainments	Institute of Education, University of Dar es Salaam, Dar es Salaam; International Institute of Educational Planning (UNESCO), Paris, France
	322	Raising the Productivity of Small Farms	Food & Agriculture Organization, Rome; Tanzania Rural Development Bank, Dar es Salaam; University of Dar es Salaam, Dar es Salaam
Thailand	230	Impact on Port Congestion of Ship Rescheduling	
	242	Professional Structure in Southeast Asia	
	268/2	International Comparison Project	National Economic Development Board, Bangkok; Ministry of Commerce, Bangkok
	307	CAMS	Thammasat University, Bangkok
	308	Evaluation of Asian Data on Income Distribution	Economic and Social Commission for Asia & the Pacific, Bangkok
	311	Public Utility Pricing and Investment	
Togo	224	Programming in the Manufacturing Sector	
Trinidad & Tobago	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
Tunisia	239	Pricing and Investment in Electricity Supply	
	270	Urban Public Finance and Administration	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	291	Benefits of Schooling for Workers	The University of Tunis, Tunis
Turkey	224	Programming in the Manufacturing Sector	
	239	Pricing and Investment in Electricity Supply	
Uganda	224	Programming in the Manufacturing Sector	East Africa Development Bank, Kampala
Venezuela	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA; Oficina de Coordinacion y Planificacion (CORDIPLAN), Caracas

Country	Project Code	Title	Participating Institution(s)
Venezuela (cont'd.)	268/2	International Comparison Project	Banco Central de Venezuela, Caracas; Ministerio de Fomento, Caracas
	280	Land Reform in Latin America	Centro de Estudios del Desarrollo, Caracas; Fundacion para la Capicitacion e Investigacion Applicada a la Reform Agraria, Caracas
Yemen Arab Republic	229	Yemen Arab Republic Feeder Road Study	Central Planning Organization, Sanaa; Swiss Federal Institute of Technology, Zurich, Switzerland
Yugoslavia	208	Short-run and Long-run Influences upon Income Distribution	
	289	Development Strategies for Smallholder Agriculture in Yugoslavia	Institute of Agricultural Economics (IEP), Belgrade
Zambia	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden

MEMORANDUM: The following is a list of participating institutions located in countries other than the country which is the subject of the external research project.

Location of Participating Institution	Institution	Country of Project	RPO Code
France	Fonds d'Aide et de Cooperation	Ivory Coast	204
	Bureau Central d'Etudes pour les Equipements d'Outre-Mer	Malagasy	314
Japan	International Development Center of Japan	Southeast Asian Countries	279
Netherlands	International Reference Center for Water Supply		312
Sweden	Swedish International Development Authority	Colombia, Guyana, Iran, Korea, Singapore, Trinidad & Tobago, Tunisia, Zambia	277
Switzerland	Swiss Federal Institute of Technology	Yemen Arab Republic	229
	Swiss Federal Institute of Technology	Malagasy	314
United Kingdom	Scott, Wilson, Kirkpatrick & Partners	India, Indonesia	226
	Transport & Road Research Laboratory	Kenya Kenya	227 228
	University of Manchester	Pakistan	212
	Overseas Consultancy Service	Mexico	267
	Institute of Development Studies, Sussex Univ.	India, Kenya, Nigeria, Sri Lanka	302
United States	Land Tenure Center, University of Wisconsin	Bolivia, Chile, Peru,	280
	Economic Growth Center, Yale University	Colombia, Philippines, Taiwan	284
	Boston University, Center for Latin American Studies	Brazil, Chile, Colombia, Ecuador, Peru, Venezuela	225
	Harvard University		275
	University of Pennsylvania	Multi-Country	268/2
	Syracuse University Research Corporation	Kenya, Malaysia	236
	The Urban Settlement Design Group, MIT		316
International	The Committee of Asian Manpower Studies (CAMS)	Thailand, Korea, Taiwan, Philippines, Malaysia	307
	Food & Agricultural Organization	Ivory Coast Malaysia Tanzania	204 317 322
	International Institute of Educational Planning (UNESCO)	Tanzania	278
	Joint Studies on Latin American Economic Integration (ECIEL)	Multi-Country	274 285/3 283/4
	Economic Commission for Latin America (ECLA)	Multi-Country	310/5
	United Nations Statistical Office (UNSO)	Multi-Country	268/2

/1 Excludes research projects which are not specific to individual countries, e.g. commodity studies or broad comparative analysis.
/2 The International Comparison Project is executed by Prof. Kravis at the University of Pennsylvania, Philadelphia, and the United Nations Statistical Office, New York in collaboration with the statistical services of the European Economic Community, Economic Commission for Europe and the Economic Commission for Africa and statistical offices in each of the countries being researched. The developing countries are Argentina, Colombia, India, Iran, Kenya, Korea, Malaysia, Philippines, Thailand, Venezuela.
/3 The research project covers urban areas in Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Peru, Uruguay and Venezuela.
/4 The 13 Latin American countries are: Argentina, Brazil, Colombia, Costa Rica, Chile, Uruguay, Dominican Republic, Ecuador, Honduras, Mexico, Panama, Peru, Venezuela.
/5 The countries involved are: Argentina, Brazil, Colombia, Mexico, Israel, Yugoslavia, India, Korea.

January 2, 1975

Table 4: COMPLETED RESEARCH PROJECTS

RPO No.	Project Title	Report
205	Cross-Section Analysis of Development Process	1. H. B. Chenery and N. Carter, "Foreign Assistance and Development Performance 1960-1970". American Economic Review, May 1973. World Bank Reprint No. 9.
		2. H. B. Chenery and M. Syrquin, "Patterns of Development 1950-1970", Oxford University Press (forthcoming), 1975.
		3. N. Carter, "A Handbook of Expected Values of Structural Characteristics", April 1974. Bank Staff Working Paper No. 154.
211	Prospects for Jute and Competition from Synthetics	1. E. Grilli and A. Morrison, "Jute and the Synthetics", January 1974. Bank Staff Working Paper No. 171.
215	Agriculture Research and Productivity Changes	1. Y. Kislev and R. Evenson, "Agricultural Research and Productivity", Yale University Press, 1975.
219	Expansion in Manufacturing for Exports in Developing Countries	1. T. Ozawa and Y. Chang, "Expanding Employment Opportunities in LDC Export Manufacturing Industry: An Analysis of the Offshore Activities of the Japanese Electronics Industry", March 1973 (unpublished).
		2. T. Ozawa, "Labor Resource Oriented Migration of Japanese Industries to Taiwan, Singapore and South Korea", August 1972. Bank Staff Working Paper No. 134.
220	Industrialization and Trade Policies for the 1970's	1. H. Hughes, "Trade and Industrialization Policies: The Political Economy of the Second Best". February 1973. Bank Staff Working Paper No. 143.
		2. H. Hughes, "Prospects for Partnership - Industrialization and Trade Policies in the 1970's". The Johns Hopkins University Press, 1973.
221	Export Promotion and Preferences in India	1. D. Wall, "The Role of Exports in India's Development Program", 1972 (unpublished).
		2. D. Wall, "Export Development and Promotion Policies", 1972 (unpublished).
		3. D. Wall, "The Impact of the Generalized Scheme of Preferences on India's Exports", 1973 (unpublished).
		4. D. Wall, "Export Policy", 1973 (unpublished).
230	Impact on Port Congestion of Ship Rescheduling	1. Asian Institute of Technology, "Application of State Dependent Queuing Models for Analyzing Ship Arrival Rates at Ports", November 1972 (unpublished).
231	Promotion of Construction Industry	1. J. de Wilde & Associates, "A Framework for the Promotion of Construction Industries in the Developing Countries", November 1973. Bank Staff Working Paper No. 168.
234	Urban Transport and the Automobile	1. W. Owen, I. Ozuata, I. Bradfield, "Automobile and Cities - Strategies for Developing Countries", September 1973. Bank Staff Working Paper No. 162.
236	Property Values and Water Supply Benefits	1. R. Bahl, S. Coellen and J. Warford, "Impact of Water Supply and Sewerage Investment on Property Values", September 1973 (unpublished).
		2. R. Bahl, S. Coellen and J. Warford, "Estimation of the Economic Benefits of Water Supply and Sewerage Projects", October 1973 (unpublished).
237	Village Water Supply	1. R. Saunders and J. Warford, "Village Water Supply and Sanitation in LDC's", March 1974, Public Utilities Report No. RES2.
		2. R. J. Saunders, "Village Water Supply in Developing Countries: Problems and Policies, March 1973 (unpublished).
240	Economic Models of Internal Migration	1. P. Brigg, "Some Economic Interpretation of Case Studies of Urban Migration in Developing Countries", March 1973. Bank Staff Working Paper No. 151.
246	Cost Effectiveness of Alternative Learning Technologies in Industrial Training	1. M. Zymelman, with the cooperation of M. Borowitz, E. Hernstadt and A. Woodruff, "Cost Effectiveness of Alternative Learning Technologies in Industrial Training - A Study of In Plant Training and Vocational Schools", December 1973. Bank Staff Working Paper No. 169.
248	Economic Issues of Health	1. P. Newman, "A conceptual Framework for the Planning of Medicine in Developing Countries", May 1973. Bank Staff Working Paper No. 153.
250	Mechanization in India - Its Extent and Effect on Hired Labor	1. D. Lockwood, "Notes on Farm Mechanization and the New Technology in Indian Agriculture", April 1973 (unpublished).
		2. B. Lockwood, "Patterns of Investment in Farm Machinery and Equipment in Indian Agriculture", January 1973 (unpublished).
251	Survey of Non-Formal Rural Education	1. P. Coombs and M. Ahmed, "Attacking Rural Poverty: How Non-Formal Education can Help", The Johns Hopkins University Press, 1974.
254	Employment and Capital Labor Substitution	1. Y. Mundlak, "Distortion in the Factor Markets and the Short Run Equilibrium". "Functional Forms of Production Functions", "Estimation of Production Functions", April 1973 (unpublished)
		2. G. Ranis, "Industrial Sector Labor Absorption", Economic Development and Cultural Change, Vol. 21, No. 3, April 1973 (World Bank Reprint Series: No. 6).
		3. S. K. Singh, "Evaluation of Employment Prospects in LDC's", October 1970. "Aggregate Production Function Causes of Growth and Measures of Dynamic Efficiency", January 1971. Bank Staff Working Paper No. 138.
281	Comparative Analysis of Resource Allocation in Cocoa Production	1. P. Young, "Comparative Advantage in Cocoa Production: A Methodological Annex", Forthcoming in Bank's Occasional Paper series.

January 2, 1975

APPENDIX

WORLD BANK RESEARCH PROGRAM

Table 5: RESEARCH INSTITUTIONS DOCUMENTS EXCHANGE PROGRAM

List of Participating Institutions

EAST AFRICA

1. Institute of Development Research
   Haile Selassie I University, Addis Ababa, Ethiopia

2. Institute for Development Studies
   University of Nairobi, Kenya

3. Economic Research Bureau
   University of Dar es Salaam, Tanzania

WEST AFRICA

1. Association of African Universities, Accra, Ghana

2. Institute of Statistical, Social & Economic Research
   University of Ghana, Legon, Ghana

3. Centre Ivoirien de Recherches Economiques et Sociales
   Universite d'Abidjan, Ivory Coast

4. Institute for Agricultural Research, Zaria, Nigeria

5. Nigerian Institute of Social & Economic Research
   University of Ibadan, Nigeria

EAST ASIA AND PACIFIC

1. Research School of Pacific Studies
   Australian National University, Canberra, Australia

2. The Institute of Economic Research
   Hitotsubashi University, Tokyo, Japan

3. Development Academy of the Philippines, Rizal, Philippines

4. University of the Philippines, Quezon City, Philippines

SOUTH ASIA

1. Bangladesh Academy for Rural Development, Comilla, Bangladesh
2. Bangladesh Institute of Development Economics, Dacca, Bangladesh
3. Bureau of Economic Research, Dacca, Bangladesh
4. Bombay University, Department of Economics, India
5. Gokhale Institute of Politics and Economics, Poona, India
6. Institute of Economic Growth, University of Delhi, India
7. National Council of Applied Economic Research, New Delhi, India
8. Centre for Economic Development and Administration, Kathmandu, Nepal
9. Secretary Planning Model, Govt. of Pakistan, Islamabad, Pakistan
10. Academy of Administrative Studies, Colombo, Sri Lanka

EMENA

1. Vienna Institute for Development, Austria
2. Institute de Recherches en Economie de la Production, Paris, France
3. Deutsches Institut fur Entwicklungspolitik, Berlin, Germany
4. Friedrich-Ebert-Stiftung Forschungsinstitut, Bonn, Germany
5. IFO Institut fur Wirtschaftsforschung, African Studies Centre, Munich, Germany
6. Institut for Scientific Cooperation, Tubingen, Germany
7. Research Institute for International Techno-economic Cooperation, Aachen, Germany
8. University of Heidelberg, South Asia Institute, Germany
9. Institute for World Economics, Hungarian Academy of Sciences, Budapest, Hungary
10. Economic Research Institute, University of Tehran, Iran
11. FINAFRICA, Centro per l'assistenza finanziaria ai Paesi Africani, Milano, Italy
12. Instituto di Studi per lo Sviluppo Economica, Napoli, Italy
13. Scuola di Sviluppo Economico, Rome, Italy

14. Institute of Social Studies, Resource Development Dept., The Hague, Netherlands

15. The Central School of Planning & Statistics Research Institute for Developing Countries, Warsaw, Poland

16. Institute for International Economic Studies, University of Stockholm, Sweden

LATIN AMERICA AND CARIBBEAN

1. Instituto de Estudios Politicos para America Latina, Buenos Aires, Argentina

2. Library of Instituto Torcuato di Tella, Buenos Aires, Argentina

3. Instituto Brasileiro de Economia Dept. of Statistics & Econometrics, Rio de Janeiro, Brazil

4. Catholic University of Chile Centro de Estudios de Planificacion Nacional (CEPLAN), Santiago, Chile

5. Fundacion para la Educacion Superior y el Desarollo (FEDESARROLLO), Bogota, Colombia

6. Instituto de Investigaciones Escuela de Ciencias Economicas y Sociales University of Costa Rica, San Jose, Costa Rica

7. Programa Centroamericano de Ciencias Sociales Consejo Superior Universitario, San Jose, Costa Rica

8. Direccion de Estudios Economicos Secretaria de la Presidencia, Mexico City, Mexico

9. Instituto de Desarollo de los Recursos Humanos del Estado de Mexico, Toluca, Mexico

CANADA

1. Institute for International Cooperation, Ottawa

2. International Development Research Centre, Ottawa

UNITED STATES

1. UNCTAD Library, UN, New York

Yellow
Research
Prog Seg

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

TO: Research Committee Members

DATE: January 7, 1975

FROM: B. B. King, Development Policy BBK

SUBJECT: Annual Report on External Research

Attached is a copy of the annual report on the Bank's external research program which will be discussed at the Board on February 4. It is scheduled to be distributed to the Executive Directors this week.

Attachment

Distribution

Messrs. Chenery, Balassa, B. de Vries, Karaosmanoglu,
Lerdau, Schulmann, Thalwitz, van der Tak, Vergin,
Waelbroeck, Yudelman
Mrs. Hughes

DRAFT
January 3, 1975

MEMORANDUM TO THE EXECUTIVE DIRECTORS

Subject: Bank Group Research Program

1. Last year the Board discussed the first comprehensive report on the Bank's external research program. This report covered the objectives and the administrative mechanisms of the program and the scope of the research projects being financed. It was generally agreed that there should be a periodic discussion of the Bank's research activities. The attached report by the Vice President, Development Policy, provides the second annual review of the socio-economic research activities of the Bank.

2. There has been a separate budget for external research since FY72. The responsibility for allocating this budget rests with the Vice President, Development Policy, who acts with the advice of a Research Committee drawn from all parts of the Bank. This report covers the major socio-economic research conducted by the Bank, including all projects financed from the external research budget. It excludes:

a) Small, generally short-term studies financed by departmental resources (including preparatory work for new research proposals);

b) Research carried out by Bank staff in the course of regular country, sector or commodity work;

c) Exceptional *ad hoc* studies, such as those leading to Report No. 477 on the "Prospects for the Developing Countries";

d) Research financed by loans and credits, which is related to specific projects;

e) Bank participation in the Consultative Group on International Agricultural Research.

3. The attached report is not intended to be comprehensive, but rather to be responsive to certain questions raised by the Executive Directors at the previous meeting, in particular the question of operational relevance. As the report indicates, there are still unsolved problems in the administration of the Bank's research program. At present, the most severe problems, which the Bank shares with most other public and private research institutions, are to ensure that research is undertaken on the most significant questions and that the results are used in operational decisions. Considerable progress has been made on this front, and the research staff is continuing to grapple with it. For example, recent policy papers on rural and urban development and the Bank's methods of project appraisal have benefitted from research on these topics.

4. In a month's time, there will be a seminar to discuss two research topics: a major agricultural project, The Agricultural Sector in Mexico; and the Bank's research activities on public utilities in general. The seminar will provide an opportunity for further discussion of all aspects of the Bank's research activities in the context of specific projects.

5. The question of the size of the resources to be devoted to research in the future has not been raised in this report. I think that it would be more appropriate to consider it when the overall budget is presented later in the year.

Robert S. McNamara

BANK GROUP RESEARCH PROGRAM

I. INTRODUCTION

1. It is now more than three years since the establishment of a program of development research for the Bank Group as a whole. During this period approximately 100 research projects, in which the Bank contribution has ranged from under ten thousand to several hundred thousand dollars, have been initiated under the external research budget. Some twenty of the initial projects have been completed. Since two to four years are normally required to complete a piece of research and publish the results in some form, a normal pipeline of work in progress has been built up, so that Bank research can now be regarded as an ongoing activity.

2. The following report on the year's research activities is presented in three parts. Part II discusses the evolving role of research in the Bank and its relation to the international research community. Part III gives a summary description of the current research portfolio. Part IV discusses problems of implementation, dissemination and identification of future research topics.

II. THE ROLE OF RESEARCH IN THE BANK

Objectives

3. In the first annual report to the Board1/ we identified four major objectives for the Bank Research Program:

- 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.

1/ Bank Group Research Program (R73-257, November 12, 1973).

4. These objectives must be interpreted in the context of the Bank's unique position as a major source of analysis of development problems as well as a major lending institution. Over the past year we have sought to determine the scope of international research on topics of interest to the Bank and its member countries and to define more clearly the Bank's role in relation to other sources of development research.

5. Our basic objectives require us to address three distinct audiences:

- the policy and operating staff of the Bank
- policy makers in developing countries
- the international research community

In discussing last year's report, Executive Directors gave differing assessments of the importance of these three groups, and a few suggested that we should concentrate more on the Bank staff as the major consumer of our research output. However, since research that is valuable for internal use in the Bank will almost by definition be of value to others concerned with development problems, we have concluded that most research projects must address all three groups. We are trying to devise appropriate means for reaching each of these audiences in an economical and effective way.

Research Priorities and Capacity

6. A year ago we outlined the general directions and priorities recommended by the Research Committee and the changes in allocation of funds that might result from these recommendations. As compared to the allocations of external research funds for FY1972 and 1973, we proposed increased emphasis on Income Distribution, Population and Human Resources, Rural Development and Urban Development, and a corresponding reduction in the relative emphasis given to transportation and public utilities and to overall analyses of development. The allocation of external research funds over the past year has been generally consistent with these recommendations (with the exceptions noted in Part III), and we do not recommend any change in the proposed shares for the next four years.

7. Our ability to move into new areas of research depends largely on the development of a research staff with the required expertise and experience. Although we have no hesitation in turning to outside consultants or research groups to supplement our own capacity, the effective use of

external resources requires a minimum internal capability to formulate proposals and monitor the work in progress. The ability to identify research priorities and make effective use of the results is also closely linked to the development of the Bank's research staff.

8. The reorganization of the Bank in the fall of 1972 included a clear identification of the departments and divisions responsible for research in some 15 areas of concern to the Bank. The principal research producing departments have since been able to realign their staffs in accordance with the general guidelines established two years ago. We now have an adequate capacity to undertake research -- or at least to design and monitor outside research projects -- in most of the priority areas; in some of the newer fields, however, such as nutrition and health, this capacity is still quite small. Our capability has been strengthened in areas such as rural development, income distribution, and urbanization, although it will be another year or two before the research output reflects the shifts in priorities.

9. Over the past several years we have established a reasonable balance between the internal research capacity of the Bank staff and the use of external consultants or contractors. While there are nearly 150 members of the Central Projects and Development Policy Staffs whose responsibilities include the conduct of some research, almost all of them combine research with participation in operational activities. Fewer than 25 are able to devote full time to research. As a consequence, almost all major research -- with the principal exception of the work on forecasting and projections in the Economic Analysis and Projections Department -- requires some use of outside consultants to provide expertise not available in sufficient quantity in the Bank staff.

10. This mixture of internal and external resources has proved quite valuable from several points of view. It provides a broader diversity of views and approaches to research than can be obtained in a purely in-house research effort and exposes the Bank staff to the current thinking of other research groups. Equally important, it provides the basis for a continuous exchange with research institutions in developing countries and a useful division of labor in carrying out major projects. In the case of new areas such as income distribution, we have deliberately sponsored work in other institutions as well as the Bank in order to test the value of alternative approaches.

Collaboration

11. The Bank collaborates both with institutions which produce research and with those which sponsor research. In considering this collaboration, it is well to bear in mind that the Bank does not readily fall into either category, although it is liable to be classified as one or the other. While it has a research arm, its prime function is operational. It finances most research projects from its own resources, although there are several important exceptions. Insofar as the Bank supports research carried out elsewhere, it is apt to be considered a donor agency. However, this is to stretch the term too far, since the Bank's primary objective is to promote research relevant to its own interests rather than to finance proposals submitted to it. The process is more akin to subcontracting. Again, however, there are a few important exceptions.

12. Appendix Table 3 lists institutions which have played a part in the Bank's external research projects. They include research institutions, government departments and private consulting firms. Collaboration with these institutions typically arises in the following way. Once a problem has been identified as worthy of consideration for a research proposal, the responsible staff identifies the country or countries in which the project might be carried out and the organizations who are able and willing to cooperate. These organizations are, in such circumstances, most likely to be located in the developing countries themselves, although in some cases there may be tripartite arrangements in which there is collaboration between the Bank and research organizations in both developed and developing countries. But it is the present policy of the Research Committee to entertain proposals for collaboration solely with institutions in developed countries, only when there is a special expertise which the Bank wishes to tap, as for example in the Site and Services project (RPO 316)1/.

13. Although the initiative for a project usually comes wholly from within the Bank, particular projects may well result from discussions between researchers or other individuals in a developing country and the staff of the Bank. Indeed, the process can be even more complex, if other developed

---

1/ Each project has an identifying "RPO" number, which is shown in the text here and subsequently for ease in cross-references to the Appendix Tables and the project descriptions in Abstracts of Current Studies.

country institutions or international agencies (e.g. FAO) are also involved. The main point is that research projects are carried out largely because of the Bank's substantive interest in them and collaboration stems from that fact. The Bank does not undertake core support for research institutions nor does it have institution-building as a primary objective, though it regards the latter as an important by-product. Fortunately, several donor agencies do regard institution-building as one of their primary objectives and have substantially greater research funds at their disposal.

14. Relations with donor agencies fall into two categories: financial collaboration and collaboration in the furtherance of international communication. Some projects are simply too large for the Bank to undertake, unless it were willing to use a very substantial proportion of the budget for a limited number of projects and so freeze out many smaller projects. Any project which requires the generation of data is apt to be costly. In most cases of this kind, the collaboration of other donors has been sought. The prime example has been the project on Substitution of Labor and Equipment in Civil Works (RPO 226). Expenditure proposed for Phase III of this project during the fiscal years 1974 to 1977 is estimated at approximately \$2½ million with contributions from the governments of Canada, Denmark, Finland, Germany, Japan, Norway, Sweden, the United Kingdom and the United States; the Bank's own contribution would be about 23% of the total for Phase III.

15. There are a few instances of "parallel financing", so to speak, of a project with contributions arranged from several sources at the outset (e.g. the employment studies being undertaken by CAMS - RPO 307), but they are the exception. Typically, the initiative for co-financing comes from the Bank itself and the task of fund-raising adds considerably to the administrative burden of staff members who also have substantive contributions to make to the project. This is especially true of projects spanning a number of years. A major topic for future discussion with donors may well be the co-financing of long-gestation projects with costly generation of data according to some agreed program rather than ad hoc as each project arises.

16. Initial efforts to promote communication have principally been devoted to the sponsorship of institutional conferences. In February 1974, the Bank joined with the Ford Foundation,

the International Development Research Centre, the Rockefeller Foundation and the U.S. Agency for International Development in sponsoring a conference on Social Science Research, with representatives from international agencies, national aid agencies and research institutions in the developing world. This meeting provided a useful overview of social science research on development and of the objectives of the principal agencies.[1] The same five sponsors have continued to explore mechanisms for the exchange of information on research priorities and activities both in general and in particular subject areas. In addition, the Bank, which had co-sponsored a meeting arranged in Belgrade in September 1972 by the OECD for Directors of Development Research and Training Institutes, co-sponsored a similar meeting in Abidjan in August 1974.

III. THE CURRENT RESEARCH PORTFOLIO

17. The budget for External Research is $1,955,000 in FY75, which, in real terms, is the same as the budget of $1,745,000 in the previous fiscal year (FY74) and 8.5% higher than in FY73. The authorization is distributed over 60 research projects, most of which are continuations or extensions of research projects from previous years; there are 22 projects which are entirely new this year, and their authorizations amount to about a third of this year's budget.

18. A summary profile of the current research portfolio is presented in the Table below[2]. Research on income distribution, agriculture and rural development absorbed a third of the expenditures in FY74; next in importance were population and human resources, industry, transportation and country economic analysis, each of which accounted for 12-13% of the total. In comparison with the previous fiscal year (FY73), a higher proportion of expenditures in FY74 was spent for research on income distribution, employment and industry; the share of transportation, development planning and country economic analysis declined correspondingly. In FY75 the pattern of expenditures is expected to be close to the guidelines in the Table below with the principal exception of transportation which will still be relatively high.

1/ The proceedings of the conference are published in The Social Sciences and Development, 1974.

2/ A complete listing of research projects financed since FY73 is shown in Appendix Table 1.

TABLE I

FUNCTIONAL PROFILE OF EXTERNAL RESEARCH PROGRAM

Percentage of Annual Expenditures

Category	FY72 Actual	FY73 Actual	FY74 Actual	FY75 Estimate	Projection FY75-78/1 (annual average)
I. Development Policy & Planning					
A. General Planning	14.8	7.3	0.5	-	1.0
B. Income Distribution	2.4	7.2	16.3	19.2	14.0
C. Growth/Country Economic Analysis/ Development Strategy	9.3	16.2	11.8	9.0	10.0
Total I	26.5	30.7	28.6	28.2	25.0
II. International Trade and Finance	0	1.0	2.9	4.3	4.0
III. Agriculture and Rural Development	11.1	18.0	16.6	13.8	20.0
IV. Industry	9.1	5.9	13.0	5.6	10.0
V. Transportation	39.2	25.1	12.5	17.6	10.0
IV. Public Utilities	6.8	8.3	7.4	5.4	5.0
VII. Urbanization and Regional Development	4.2	3.4	4.4	4.2	10.0
VIII. Population and Human Resources					
A. Education	1.9	2.7	3.8	3.8	5.0
B. Labor/Employment	0.3	4.4	8.8	8.5	5.0
C. Population/Health	0	0.4	.8	6.0	5.0
Total VIII	2.2	7.5	13.4	18.3	15.0
IX. Other	0.7	0	1.2	2.6	1.0
GRAND TOTAL	100.0	100.0	100.0	100.0	100.0

/1 As forecast in Table 2 of the Board paper on Bank Group Research, November 12, 1973. The figures here should be read as broad guidelines reflecting the Research Committee's views on sector priorities rather than as specific allocations year by year.

19. A description of each of the research projects is available in "World Bank Research Program: Abstracts of Current Studies". The following sections discuss the main components of the present research portfolio in more condensed form.

Income Distribution and Employment

20. It is widely recognized that the benefits of growth do not reach all segments of society equally and that direct redistributive measures as well as reorientation of growth strategies are necessary to benefit the poor. Aside from the political realities of policy making in this sensitive area, policy makers are frustrated both by the lack of theoretical structures that illuminate the links between growth and equity and by the poverty of data on the distribution of income. The Bank's research attempts to address both these needs.

21. There are four ongoing research projects whose main objective is to compile and analyze existing data. The earliest is the Size Distribution of Income (RPO 209) which extends efforts by the UN to compile and evaluate existing data on income distribution and identify broad cross-country patterns. The dissatisfaction with the available published tabulations of data has led to two subsequent research projects designed to study the original data more intensively. These projects are organized on a regional basis and are being undertaken in collaboration with ECLA and ESCAP (RPO 283, 308). We are also assisting ECIEL (a group of research institutions in Latin America) in investigating the patterns of income distribution in urban areas in Latin America, using data from previously completed household budget surveys (RPO 285). The data-oriented research projects will improve analysis of cross-country patterns and enable more precise identification of poverty groups, both rural and urban, in terms of their asset holdings, occupation, education and other demographic and socio-economic characteristics.

22. In addition to data collection, one needs a better understanding of the theoretical and empirical relationships between growth and equity to guide the formulation of policy in this area. A variety of research projects seek this goal. Two of the projects rely on multi-sector models that are designed to examine the consequences for the distribution of income of alternative packages of fiscal and monetary policies. These models are based on data from Brazil (RPO 269) and Korea (RPO 206). Work has also begun recently on

"Prototype Models for Country Analysis" (RPO 286), which attempts to devise a methodology for country analysis which will improve the Bank's understanding of distributional questions in country economic work.

23. There are other research projects which will analyze country experience intensively, but with simpler models. Employment and Income Distribution in Malaysia (RPO 294) has evaluated existing distribution patterns and poverty profiles and is now measuring the impact on the distribution of income of policies to improve employment. Another project (RPO 284) is exploring the links between growth, employment and the distribution of income in a cooperative study involving the Yale Growth Center and researchers in Taiwan, Colombia, and the Philippines.

24. It is premature to pass judgment on which of these various approaches will prove to be the most useful for the analysis and design of redistributive policies, and what combination we should strike in future research efforts in this area. We do feel, however, that more emphasis should be placed on the identification of specific groups of the poor such that one can design specific policies to alleviate their poverty. A beginning has been made in several research projects, some of which will be discussed in other sections. Research projects in agriculture and rural development attempt to learn more about small farmers and the behavioral and institutional obstacles which inhibit improving their productivity and incomes (RPO's 273, 289, 317 and 322). Other projects seek to define appropriate standards of design for site and service housing projects (RPO 316) and for the distribution of electricity (RPO 267) and to evaluate mechanisms for undertaking a nutrition improvement program in the context of a study of construction methods (RPO 315).

25. Another project with broad policy implications in this area is Distributive Impact of Public Expenditures (RPO 296) which will identify the beneficiaries of major government services and explore the factors determining the effective household demand for these services in Malaysia and Colombia.

26. An effective employment policy is an important component of policies to improve the distribution of income and assets. Employment Models and Projections (RPO 306) experiments with different techniques of projecting employment prospects so as to provide a basis for choosing the appropriate mix of measures that emphasize faster growth, more labor

intensive technology or changing the composition of final demand. This, like the study on Malaysia referred to above (RPO 294), will primarily rely on the use of input-output models to depict the structure of the economy.

27. A different approach is taken in a set of projects that investigate the workings of the urban labor market (RPO's 243, 245, 290). These projects variously use surveys of households, school-leavers, employers and workers in the modern and informal sectors to examine the earnings and occupation structure of the urban labor force. They attempt to consider the number of earners and dependents in household units so that the findings can be used in designing policies to improve the productivity and incomes of the urban poor. A preliminary step in the development of these studies was the survey of the determinants of rural-urban migration completed under a previous research project Economic Models of Internal Migration (RPO 240).

28. The external research budget is also providing some support for a number of studies in Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand being undertaken under the supervision of the Committee for Asian Manpower Studies (CAMS). These research projects will examine the employment implications of trade policies, migration determinants and the absorption of labor in services and other selected sectors of the economy.

29. A number of countries have tried a more direct method of raising the incomes of the poor -- public works programs which provide employment opportunities for those without jobs and with minimal skills and training. Rural and Urban Public Works (RPO 275) surveys the characteristics and effectiveness of such programs in 15 developing countries, attempting to identify the most promising organizational, administrative and financial arrangements.

Agriculture and Rural Development

30. Several major studies of rural development are very nearly completed, and summaries of their findings are in the process of preparation or publication. The Africa Rural Development Study (RPO 218) has completed the review of projects in Africa, and drawn a number of lessons concerning the design of rural development projects. The findings have already been incorporated into the recent policy paper on rural development, (R74-245, December 5, 1974), and the final report is being prepared for publication. Several papers have been written concerning the use of programming models for the valuation of

agricultural investment and pricing strategies in Portugal and Brazil (RPO 213) and in Mexico (RPO 216); the final reports are nearing completion.

31. The studies of farm mechanization in Pakistan and India (RPO's 212, 214 plus 250, which has been completed) attempt to ascertain the impact of mechanization on farm employment and incomes. The reports from the collaborating research institutes in India will form a major input into an Issues Paper on the subject, scheduled to be distributed to the Board later in this year.

32. Most of the more recent research in this area focuses on the special characteristics of small farmers. Rural Development in Northeast Brazil (RPO 273) attempts to provide the analytical framework and the data for assessing the interaction of farm size, tenure arrangements and technology diffusion in determining the incomes of rural households1/. When completed, the research should have a significant impact on the identification and design of rural development projects in Northeast Brazil (and possibly elsewhere as well). A joint study with the FAO has recently begun in Tanzania to estimate the potential growth of the productivity of small farmers in various agro-ecological zones (RPO 322). If successful, similar studies will be undertaken in other countries to provide the basis for specific programs to improve the incomes of small farmers. Another study in progress (RPO 289) analyzes the effects of government policies, institutional arrangements and socio-economic conditions on smallholder agriculture in three regions of Yugoslavia and the linkages between farms of different sizes.

33. The risks of failure are relatively greater in rural development projects than in our more traditional investments because we know relatively little about socio-economic structures in rural communities and how these structures would respond to different kinds of intervention. Analytics of Change in Rural Communities (RPO 317) will use available village studies and information from rural development projects to identify key socio-economic characteristics of rural communities that are of primary significance in the design of rural development projects.

1/ The sampling frame and the data generated by this research project is also being used in another project Economic Aspects of Household Fertility (RPO 299).

34. Other research projects in this area are concerned with land reform (RPO 280), the determinants of rural savings propensities (RPO 304) and the potential for increasing the supply of foodgrains in Asia (RPO 321). The latter research project will attempt to fill a serious gap in present research on the world food crisis by systematically collecting information on factors constraining an increase in foodgrain production in the major deficit region. Projects in areas related to rural development which are described elsewhere in this report include studies on feeder roads (RPO's 229, 271, 314) and village electrification (RPO 238). One of the completed projects is the study of international data on costs and outputs of agricultural research and the contribution of that research to crop yields (RPO 215).

Urbanization

35. Research on urbanization is mainly concerned with improving the data base, assessment of land use policies and some specific problems in the public utility, transport and housing sectors.

36. Two projects on urban data are nearing completion. Urban Data Needs (RPO 241) is developing a framework for comparative urban data systems and will present results for four cities; Urban Public Finance (RPO 270) will analyze local revenue and expenditure patterns in eight cities. Building on a study of the techniques of appropriating land value increments for public use (Working Paper No. 179), Urban Land Use Policies (RPO 298) will evaluate urban land control measures, the sources of urban land price increases and the role of urban land taxation.

37. Several recent projects are concerned with problems of the design of urban services that the Bank might finance. Investments in developing countries are often designed to standards of reliability and convenience that are too high for countries where incomes are low and capital is scarce. This is a serious problem in urban projects and is the concern of two recently approved research projects. Standards of Site and Services Projects (RPO 316) will consolidate cost data for alternative design standards for site and service housing projects; another project (RPO 267) does the same for urban electricity distribution systems. The supply of water to poor urban areas, usually through standpipes, involves a lot of waste when the pipes are left unattended and run continuously.

The project Reduction of Waste Water from Public Hydrants (RPO 312) will identify and evaluate alternative techniques of controlling such waste which can be used in future investments in low-income rural areas and urban fringes.

38. A major new project is the study of the effectiveness of measures to reduce urban traffic congestion (being financed jointly with the UN Environmental Program). Singapore has undertaken a comprehensive program of urban congestion pricing and physical restraints on peak-hour down-town traffic. This provides an opportunity to test the validity of behavioral travel models and increase our ability to evaluate alternative traffic restraint policies and schemes (RPO 320). The preparation of this research proposal was aided by a preliminary survey of information in this area (RPO 234).

Planning, Growth Processes and Country Economic Analysis

39. The principal research study in this area is the International Comparison Project (RPO 268) whose aim is developing and testing methodologies for the international comparison of economic aggregates without relying exclusively on official exchange rates, which do not satisfactorily reflect the relationships between national price levels. On completion of this project in 1978, we will have detailed data for about 32 countries which can then be used as a basis for evaluating shortcut methods for international comparison, which are being developed for application to a large number of additional countries. The project is being executed by the University of Pennsylvania in collaboration with the United Nations Statistical Office and a number of national statistical units. It has had support from other official agencies, including contributions from the governments of Germany, Netherlands, United Kingdom and United States during the current fiscal year.

40. Another project which is smaller in scale but to which we attach considerable significance is Prototype Models (RPO 286). The study is intended to improve our modelling methodologies for country economic analysis, especially of problems such as the effects of alternative development strategies or employment creation or income distribution. The research project on the methodology of Project Appraisal (RPO 208) is nearing completion. It has produced a number of studies which have proved useful in suggesting improvements in Bank practice which are now being tested.

41. Projects in this category which are almost completed are the second case study of multi-level planning methods (in the Ivory Coast, RPO 204) and the application of new estimation procedures for the study of household savings and expenditure patterns (RPO 203); the survey of planning models (RPO 210) has been completed and will be published very shortly. Also recently completed is the inter-country and inter-temporal analysis of structural changes (RPO 205) being published in the book Patterns of Development 1950-1970.

Industry and Trade

42. The principal research projects in this area evaluate incentive policies to promote industrialization and elaborate the methodology for investment planning in the manufacturing sector.

43. Two research projects undertake a detailed analysis of industrial incentive schemes in groups of countries at different stages of development. Development Strategies in Semi-Industrial Countries (RPO 201) examines export-incentive and import protection measures in countries whose industrial sector is relatively well developed; Industrial Policies and Economic Integration in West Africa (RPO 287) undertakes a similar analysis for countries which are heavily reliant on the export of primary products. The experience of several Latin American and a few other countries in the promotion of exports will be the subject of papers to be discussed at a seminar that is being organized jointly with ECLA (RPO 310). One aspect of this subject -- the problems faced in adjusting to export expansion by LDC's -- is discussed in a series of papers under a completed research project Industrialization and Trade Policies in the 1970's (RPO 220). This research will assist the Bank in its evaluation of development strategies and prospects of member countries.

44. Programming in the Manufacturing Sector (RPO 224) uses the methodology of process analysis to address a number of problems in connection with the selection of scale, timing, location and technology of industrial projects. A detailed manual is being prepared to assist Bank operating departments in project selection. A companion research project applies this methodology to the mechanical engineering industry, where there is relatively more scope for alternative production techniques and product differentiation, and studies the possibilities for efficient substitution of labor for capital (RPO 223).

45. The studies of the determinants of industrial capacity utilization (RPO's 225, 275) are nearing completion and a survey of the organizational aspects of programs for financing small-scale industries (RPO 277) has been completed in collaboration with the Swedish International Development Authority.

46. Recently approved research projects in this area are World Commodity Models (RPO 309) which will provide a systematic framework for the compilation of data and analysis of selected commodity markets, including energy; and Patterns of Industrial Development (RPO 305) which will analyze structural changes in industrial production, trade and employment in about 100 countries. Two major commodity studies have been completed in the past year on jute (RPO 211) and cocoa (RPO 281), both of which have been useful in formulating price projections and policies in this area.

47. The major research effort in this area continues to be on the Substitution of Labor and Equipment in Road and Civil Works Construction (RPO 226) and Highway Design Standards (RPO 227). The former study is now in its third phase, seeking to develop and demonstrate efficient intermediate techniques for civil construction. The conclusion from the first two phases of the study was that labor intensive methods as they are traditionally practised were not competitive with modern equipment methods for most conceivable sets of factor prices. The Highway Design Standards study is in its second phase, generating primary data for the use of a simulation model for the evaluation of alternative designs.

48. In 1971 the Bank initiated a research program to study the developmental impact of feeder road investments in rural areas, using socio-economic surveys before and after the construction of the road. The first two studies (in Yemen Arab Republic (RPO 229) and Ethiopia (RPO 271)) now await construction of the road. This year we have added a third study (in Malagasy (RPO 314)) which can go straight to the final stage since the baseline survey and road construction have been completed. This series of projects will develop systematic information for the evaluation of rural development projects involving feeder roads.

49. Other recent additions to the research program in this area are the study of Urban Traffic Restraint in Singapore (RPO 320, see above) and the Economics of Containerization (RPO 313). The latter will set up an economic framework for analysis of port investment, pricing and fiscal decisions,

studying the apportionment of costs and benefits between foreigners and the domestic economy.

Public Utilities

50. The principal research project in this area is Village Electrification (RPO 238). The purpose of the study is to develop criteria for evaluating the scale and composition of village electrification programs in the context of the Bank's rural development activities. The study is particularly concerned with the measurement of the benefits of electrification, taking account of the effects on agro-industrial output and the relation of electricity to other projects providing rural infrastructure. This study has been the basis for the Issues Paper "Issues in Rural Electrification" (Secretary's memorandum M-74-636 of September 12, 1974).

51. The analyses of pricing and investment decisions in power (RPO 239) and telecommunications (RPO 276) continue to be a significant part of the research program in public utilities. Two research projects on water supply have been completed (RPO's 236, 237) and current projects include studies in the power and rural telecommunications sectors (RPO's 239 and 276). Recently, the research effort is being extended to include examination of the trade-off between efficiency and other objectives such as income distribution and constraints such as institutional factors.

52. Two other research projects, Reduction of Waste Water from Public Hydrants (RPO 312) and Standards of Reliability of Urban Electricity Supply (RPO 267) have been discussed in earlier sections.

Population/Health

53. The two research projects in population are both concerned with improving an understanding of the determinants of fertility and the economic costs and benefits of larger families in rural households. One project (RPO 299) tests hypotheses about the relationships between family size, schooling and employment in low-income rural families, using the large amount of data being generated in Northeast Brazil in another research project (RPO 273). The other project Population Growth and Rural Poverty (RPO 302) consists of comparative anthropological studies in Asia and Africa. This project is also being financed by the Population Council and the Overseas Development Ministry (UK).

54. Research on the relation between iron deficiency and worker productivity has already been undertaken as a byproduct of the study on labor substitution in civil construction (RPO 226) (Bank Staff Working Papers Nos. 152 and 175). A recently approved project (RPO 315) will broaden these studies to include other types of nutritional deficiencies and evaluate mechanisms for undertaking a nutritional improvement program.

Education

55. The four projects in this area are concerned with different problems. One project (RPO 278) deals with project evaluation methodology and education attainments; it aims at producing a widely acceptable methodology for evaluating learning taking place in Bank-assisted educational institutions. The methodology will be tested in East Africa and an important component of the project is the training of African educators in the evaluation methodology. Other research projects include an investigation of alternative mechanisms for the financing of education with emphasis on the social equity aspects of education expenditure and finance (RPO 244); an empirical analysis of the effects of schooling on workers' productivity and earnings (RPO 291); and a survey of educational reforms to assess their effectiveness and impact on social equity (RPO 319). Two useful surveys have been produced by completed research projects: one on non-formal education (RPO 251) and another on industrial training schemes (RPO 246).

IV. ADMINISTRATION OF THE RESEARCH PROGRAM

56. The Research Program in its present form was initiated in FY72. Since then, the reputation of the research work of the Bank has been greatly enhanced; the calibre of the staff executing or supervising this work has attracted visiting scholars from the academic world. A landmark in this growing reputation was the winning of the Lanchester prize awarded by the Operations Research Society of America for the best English-language contribution in operations research. The book which shared the 1973 award was Multilevel Planning: Case Studies in Mexico, edited by Louis Goreux and Alan Manne (RPO 216).

57. Despite these successes in the short history of the program, it is salutary at this juncture to do some stocktaking of past activities in order to see whether some modifications

of present procedures should be considered. Before doing this, a short description of the present administrative arrangements may be helpful.

58. As a general rule, research projects are initiated by staff members and selected through a formal review process. Final selection of proposals for research projects is made by the Vice President, Development Policy, on the advice of the Research Committee which has broad representation from the operational and research departments of the Bank, acting, however, in an individual capacity. Before being reviewed by the Research Committee, each proposal is commented on by interested departments and then examined by a small panel of staff members, with a member of the Research Committee as chairman. There are several separate panels, to each of which is assigned two or three proposals. These are discussed in detail with the sponsors of the proposals.1/

59. It is useful to bear in mind a number of tests which proposals made for inclusion in the Research Program should satisfy. It goes without saying that the first test is whether the execution of the project is likely to be technically competent. The second is whether the project can be expected to contribute, directly or indirectly, to problem-solving and decision-making: in other words, whether it is operationally relevant either to the Bank or its member countries. A third is whether the project is designed to exploit the Bank's comparative advantage; in other words, is the Bank the best place to carry out the project? Fourth, there is the difficult question of opportunity cost; does the project proposed have higher priority than other alternatives, not merely those submitted, but others which might have been submitted? Finally, there is the question of dissemination; has provision been made for making the results available in useable form to the relevant audiences both inside and outside the Bank.

60. At the cost of some oversimplification of the range of possibilities, two possible sources of initiative for the creation of a research proposal can be distinguished. On the one hand, an operational problem may be perceived by those

---

1/ Research proposals from outside institutions or individuals are the exception; they have to be submitted to the Research Committee by Bank staff and are subject to the same review procedures as internal proposals.

who have to deal with it. Once the questions are properly articulated, it is then necessary to formulate a research project specifically to answer or help in answering them - by no means a simple task. On the other hand, a research project may be generated, not by the ultimate user in the first instance, but by a researcher who has particular analytical skills at his command and who perceives a research problem which interests him. Research originating in this way will then be faced with the question whether it can be applied in an operational context, and, if so, how and where. Thus, to use a convenient market analogy, research proposals can originate from the demand side (the ultimate user) or the supply side (the researcher). The former will tend to be of direct application but possibly narrow in scope. The latter may be broader in conception, but their applicability more speculative.

61. One characteristic of the Research Program, as initially constituted, is that it tended to be dominated from the supply side. Proposals for research have come, typically, from those who will carry out the research or at least have a direct role in its execution. This does not mean that such projects are conceived in isolation; indeed, the contrary has normally been the case. But it does mean that a possible source of promising research proposals has not been fully exploited. This is because those who have to deal with operational problems often do not have the time and the particular expertise required to articulate them in such a way that they take the shape of an acceptable research proposal. In other words, there is apt to be a missing link from the demand side.

62. It would be an exaggeration to suggest that the link is missing altogether. It is clear from Section III that there are a number of projects which derive from operational problems. One obvious example is the study of rural development projects in Africa (RPO 218), which derives directly from an operational need to examine past projects and extract what lessons are possible for future design. There are others in the agricultural field which also have an operational origin but are only at an early stage. Virtually all the projects in the fields of transportation and public utilities described in Section III have emerged as a result of perceived needs in operational work in these sectors.

63. The fact that a project originates with a clearly perceived operational problem is, normally, a sufficient condition for considering it to be operationally significant but it is not a necessary one. Several of the research projects in the manufacturing sector (e.g. RPO 224) began as, so to speak, "pure" research, but the techniques developed are now being adapted for use in an operational context in cooperation with the staff working on projects in this sector. Much the same can be said of the research project on the Agricultural Sector in Mexico (RPO 216) which has been carried out in close collaboration with researchers in Mexico. The results have been extensively used by the Mexican Government and requests are being received for adaptation of the model to other countries. The data collected in the course of the project on Rural Development in Northeast Brazil (RPO 273) in collaboration with several Brazilian institutions is already proving operationally useful.

64. In fact, the notion of operational relevance is, to some extent, a function of time. It may well be that the results of a particular piece of work will only become operationally useable after a second round of investigations into the implications of the results has taken place. It is possible, for example, that this will be the case with the International Comparison Project (RPO 268) on the methodology of national income comparisons in ways which eliminate the use of exchange rates. The voluminous data generated in order to achieve the primary objective could become the basis for further research on the development process.

65. A desirable mix would include a range of research projects, including some of short and some of long gestation from the time they are initiated to the time when the results are applied in an operational context. While all research projects should be addressed ultimately to operational needs in the Bank or outside, there is a case for including some research endeavors that have a long gestation period. This mix would correspond to a particular comparative advantage of the Bank, namely the variety of disciplines on its staff, especially if their skills can be exploited in an interdisciplinary way.

66. The Bank is not unique in facing the rather intractable problem of forging links between the producers and users of research1/. There have, as already suggested, been some

---

1/ A study of the effectiveness of dissemination methods for research is currently under way in the OECD.

effective efforts to solve it within the Bank. The more successful ones have owed much to the establishment of good, though informal, internal communication between operational and research personnel. The most promising line of attack, therefore, is to encourage the extension of this kind of communication. This line is now being followed by holding a series of informal discussions between small groups of operational staff and researchers, at which the difficulties on both sides can be aired. When some experience has been gained from these discussions, more formal steps will be contemplated, if necessary. Meanwhile, it is intended that the Research Committee do more in the future than approving or rejecting a research proposal. When a problem is presented to it in a form which is not acceptable as a research proposal, the Committee will be asked to assess its importance from an operational point of view and to make recommendations as to the appropriate follow-up order to improve it, where appropriate.

67. If more attention can be paid to the demand side, this should help to satisfy some of the other tests mentioned earlier. Research projects originating from this side have a good chance of contributing to the decision-making process, not only in the Bank, but outside. They will also tend to exploit the Bank's comparative advantages, which include access to data, continuous involvement in the carrying out of investment projects in developing countries, and worldwide connections as a result of its operations. The close working relationship between Bank staff and policy makers in developing countries provides an opportunity for researchers in the Bank to observe closely, and respond to pressing operational needs. Research projects which have an operational origin and are subsequently applied to operational problems are likely to be looked at in terms of their long-term evolution, rather than as one-shot affairs. Bank projects (i.e. physical ones) can be utilized for testing application and for data generation. Iterative improvements in technique can be contemplated over time.

68. Research projects with an operational origin are also likely to be more effectively disseminated, at least within the Bank in the first instance. Indeed, the process, though it may not be automatic, is likely to have a good deal of built-in impetus. If the existence of an operational problem is the genesis of a research project, those who perceived the problem in the first place are likely to press for the results of a research project in a form that they can use.

69. The problem of dissemination is probably more critical in research projects emanating from the research of the supply side. Isolated research projects, even if they are well carried out and have a message to convey, may fail if the interests of the ultimate user are not clearly in mind and catered to, whether in the Bank or not. The Bank does have a well established system of discussing research results in seminars and subsequently publishing them in working papers or books. But, dissemination does not just mean publication or giving seminars. People with limited time to spare are not going to attend seminars or read research papers, simply on the off chance that there might be something there of use to them. Dissemination also requires taking positive steps to attract the attention of those who might be expected to use the results of the research, but who have not got the time and possibly the technical knowledge to plough through documents which are essentially addressed to technicians.

70. A number of projects in the research program so far are being executed in such a way that the users receive adequate guidance through well-conceived devices such as users' manuals[1/]. However, this has not always been the case. Ideally, the concept of a channel of communication to the ultimate user should be stressed at the design stage. Steps are being taken to identify the ultimate user and incorporate plans for dissemination into the research proposal itself. An example of this is Prototype Models for Country Analysis (RPO 286) which is a joint effort by the Development Research Center and the Comparative Analysis and Projections Division. Founded on the Bank's recent research on development strategies, the aim is to produce a working tool for the Bank's regional offices for regular country analysis.

71. This discussion of the merits of proposals emanating from the demand side should not suggest that proposals from the supply side do not also have some significant advantages. After all, an essential requirement for good research is the enthusiasm of the researchers themselves. What we are arguing for is a balance between the two possible origins of research

---

1/ e.g. a handbook on engineering and cost data on alternative designs of site and service projects (RPO 316). Other examples of dissemination mechanisms are policy/issues papers that frequently draw heavily on research, and departmental notes addressed to operational departments such as those put out by the Public Utilities Department in Central Projects Staff.

proposals. Ultimately, closer working relationships between research producers and users in the preparation of research proposals may well eliminate this distinction altogether.

72. In sum, while the research program during its short life up to this time may be regarded as a reasonably successful effort, there are still problems of communication which require attention. The Bank, precisely because it is an institution combining operations and research, is in a better position than others to make further progress towards a solution. But it will take time and continuous effort.

APPENDIX

WORLD BANK RESEARCH PROGRAM

Table 1: STUDIES FINANCED SINCE FY1973
(US$'000)

Category/Title	Program Code (RPO)	Executing Department*	FY1973 (Actual)	FY1974 (Actual)	FY1975/1 (Authorized)
I. Development Policy + Planning					
A. General/Planning					
Country Programming Study: Chile	202	DRC	23.9	-	-
Study in Multi-Level Programming: Ivory Coast	204	DRC	82.2	-	-
Survey of Economy-wide Planning Models	210	DRC	18.5	10.1	-
Sub-total			124.6	10.1	-
B. Income Distribution					
Short-run and Long-run Influences upon Income Distribution	206	DRC	68.6	45.3	20.0
Size Distribution of Income	209	DRC	31.8	-	-
Growth and Income Distribution in Brazil	269	DRC	20.9	60.2	25.0
Evaluation of Latin American Data on Income Distribution	283	DRC	-	36.2	41.5
Growth Employment and Size Distribution of Income	284	DRC	-	70.0	75.2
Urban Income Distribution in Latin America	285	DRC	-	30.0	78.0
Employment and Income Distribution in Malaysia	294	DRC	-	15.8	31.0
Distributive Impact of Public Expenditures	296	ECD/DRC	-	36.9	92.0
Evaluation of Asian Data on Income Distribution	308	DRC	-	-	39.5
Sub-total			121.3	294.4	402.2
C. Growth/Country Economic Analysis/ Development Strategy					
Development Strategies in Semi-Industrial Countries	201	DRC	37.3	-	-
Patterns of Demand and Savings in the Development Process	203	DRC	28.3	42.6	22.5
Cross-Section Analysis of Development Process	205	EAP	32.4	14.4	-
International Models	207	DRC	14.8	-	-
Project Appraisal and Shadow Prices	208	VPS	33.4	35.1	26.0
Employment and Capital-Labor Substitution	254	DRC	18.9	-	-
International Comparison Project	268	EAP	78.5	87.0	90.0
Analysis of Income and Consumption (ECIEL)	274	DRC	30.0	35.0	-
Prototype Models for Country Analysis	286	DRC/EAP	-	-	50.0
Sub-total			273.6	214.1	188.5
Total - Section I			519.5	518.6	590.7
II. International Trade and Finance					
Prospects for Jute and Competition from Synthetics	211	EAP	17.2	-	-
Economic Development of East and Southeast Asia	279	AEA	-	26.5	25.8
Comparative Analysis of Resource Allocation in Cocoa Production	281	EAP	-	21.8	-
Seminar on Inflation and Commodity Prices	282	EAP	-	4.5	-
World Commodity Models	309	DRC/EAP	-	-	25.0
Promotion of Non-Traditional Exports	310	LAC	-	-	40.0
Total - Section II			17.2	52.8	90.8
III. Agriculture and Rural Development					
Reappraisal of Credits for Financing Farm Mechanization in Pakistan	212	ECD	17.4	-	-
Evaluation of Alternative Methods for Specifying Agricultural Sector Development Strategies: Portugal & Brazil	213	AGP	23.5	14.1	-
Agriculture Mechanization Study in India	214	AGP	50.6	31.1	7.5
Agriculture Research and Productivity Changes	215	ECD	16.7	-	-
Agricultural Sector in Mexico	216	DRC	21.2	25.6	10.5
Rural Development in Africa	218	ECD	145.8	12.6	-
Mechanization in India: Its Extent and Effect on Hired Labor	250	ASA	5.5	-	-
Rural Development in Northeast Brazil	273	DRC	28.7	133.0	97.2
Land Reform in Latin America	280	ECD	-	35.9	11.3
Development Strategies for Smallholder Agriculture in Yugoslavia	289	AGP	-	27.4	11.1
Evaluation of Lilongwe Land Development Program	293	ECD	-	21.4	-
Rural Savings and Investment	304	ECD	-	-	12.0
The Analytics of Change in Rural Communities	317	DRC	-	-	57.0
Foodgrain Production in Asia	321	AGP	-	-	50.0
Raising the Productivity of Small Farms	322	AGP	-	-	30.0
Total - Section III			304.4	301.1	286.6
IV. Industry					
Industrialization and Trade Policies for the 1970's	220	ECD	18.2	-	-
Export Promotion and Preferences: India	221	ECD	18.0	-	-
Scope for Capital-Labor Substitution in the Mechanical Engineering Industry	223	DRC	31.2	17.7	13.9
Programming in the Manufacturing Sector	224	DRC	31.8	71.5	6.5
Industrial Capacity Utilization in Selected Latin American Countries	225	NDP	-	50.0	-

Category/Title	Program Code (BPO)	Executing Department*	FY1973 (Actual)	FY1974 (Actual)	FY1975/1 (Authorized)
IV. Industry (continued)					
Financing of Small Scale Industry	277	ECD	-	34.7	-
Industrial Policies and Economic Integration in West Africa	287	DRC	-	27.3	54.5
Industrial Capacity Utilization	295	ECD	-	35.0	22.8
Patterns of Industrial Development	305	ECD	-	-	20.0
Total - Section IV			99.2	236.2	117.7
V. Transportation					
Substitution of Labor and Equipment in Civil Works	226	TRU	156.4	137.7	150.0
Highway Design Study: Phase II	227	TRU	190.3/2	51.6	50.0
Measurement of Road Width/Vehicle Speed Relationship	228	TRU	-	1.9	-
Yemen Arab Republic Feeder Road Study	229	TRU	14.9	29.4	6.6
Impact on Port Congestion of Ship Rescheduling	230	TRU	4.8	-	-
Promotion of Road Construction Industry in Developing Countries	231	TRU	30.2	-	-
Compilation of Highway Design Standards	232	TRU	0.8	0.5	-
Railway Traffic Costing Study	233	TRU	8.7	-	-
Ethiopia Feeder Road Study	271	TRU	18.5	2.4	- /3
Economics of Containerization	313	TRU	-	-	20.0
Malagasy Feeder Road	314	TRU	-	-	32.0
Urban Traffic Restraint (Singapore)	320	TRU	-	-	110.0
Total - Section V			424.6	223.5	368.6
VI. Public Utilities					
Property Values and Water Supply	236	PBP	3.3	-	-
Village Water Supply	237	PBP	18.5	-	-
Analysis of Problems and Issues in Village Electrification	238	PBP	103.3	81.6	13.0
Pricing and Investment in Electricity Supply	239	PBP	16.0	14.8	7.0
Standards of Reliability of Urban Electricity Supply	267	PBP	-	24.5	29.0
Pricing and Investment in Telecommunications	276	PBP	-	13.7	13.0
Public Utility Pricing and Investment	311	PBP	-	-	30.0
Reduction in Waste Water	312	PBP	-	-	20.0
Total - Section VI			141.1	134.6	112.0
VII. Urbanization and Regional Development					
Urban Transport and the Automobile	234	TRU	12.3	-	-
Economic Models of Internal Migration	240	ECD	8.1	-	-
The Urban Data Needs of the IBRD	241	ECD	4.5	11.4	-
Urban Public Financing and Administration	270	ECD	32.2	32.3	1.9
Urban and Regional Subsystems in West Malaysia	297	ECD	-	12.8	0.9
Urban Land Use Policies: Taxation and Control	296	ECD	-	23.0	-
Urbanization Standards for Site and Services Projects	316	TRU	-	-	50.0
Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	318	ECD	-	-	35.0
Total - Section VII			57.1	79.5	87.8
VIII. Population and Human Resources					
A. Education					
Professional Structure in Southeast Asia	242	ECD	12.0	-	-
Student Loan Schemes	244	EDF	2.7	18.0	15.0
Cost Effectiveness of Alternative Learning Technologies in Industrial Training	246	EDP	30.7	7.6	-
Project Evaluation Methodology: Education Attainments	278	EDP	-	25.0	40.0
Benefits of Schooling for Workers	291	ECD	-	17.6	10.0
Economic Development and Education Reform	319	ECD	-	-	14.0
Sub-total			45.4	68.2	79.0
B. Labor and Employment					
Labor Market in Malaysia	243	ECD	10.9	11.6	20.3
Labor Force Participation - Income and Unemployment	245	ECD	0.2	18.5	36.6
Costa Rica Unemployment Survey	247	ECD	10.9	-	-
Rural and Urban Public Works	275	ECD	52.9/4	101.2	52.0
Labor Market in a Rapidly Growing Economy	290	ECD	-	27.9	4.1
Employment Models and Projections	306	ECD	-	-	40.0
Council for Asian Manpower Studies	307	ECD	-	-	25.0
Sub-total			74.9	159.2	178.0
C. Population/Health					
Economic Issues of Health	248	ECD	6.7	-	-
Economic Aspects of Household Fertility Behavior & Labor Supply in N.E. Brazil	299	ECD	-	15.7	50.4
Population Growth and Rural Poverty	302	ECD	-	-	22.0
Maximizing Usefulness of Household Surveys	303	ECD	-	-	17.5
Effects of Health and Nutrition Standards on Worker Productivity	315	TRU	-	-	35.0
Sub-total			6.7	15.7	124.9
Total - Section VIII			127.0	243.1	381.9

Category/Title	Program Code (RPO)	Executing Department*	FY1973 (Actual)	FY1974 (Actual)	FY1975/1 (Authorized)
IX. Other/5			22.6	20.9	55.0
Grand Total			1,712.7	1,810.3	2,091.1

/1 Research Committee authorizations as of October 21, 1974. Figures include overprogramming to allow for normal lags between authorizations and disbursements. The FY1975 budget authorization is $1,951,000.
/2 Includes some charges carried over from 1972.
/3 After FY1974, project RPO 271 is being financed from IDA Credit No. CR 416-ET, July 5, 1973.
/4 Project RPO 275 was financed from the general contingency budget in FY1973.
/5 Includes small expenditures on discontinued projects, studies within the country concentration program and provision for travel and conferences.

*Department Codes

Development Policy Staff
DRC - Development Research Center
ECD - Development Economics Department
EAP - Economic Analysis and Projections Department

Central Projects Staff
AGP - Agriculture and Rural Development Department
NDP - Industrial Projects Department
TRU - Transportation and Urban Projects Department
PBP - Public Utilities Department
EDP - Education Department

Regions
LCN - Latin America and the Caribbean Regional Office
AEA - East Asia and Pacific - Country Program Department
ASA - South Asia - Country Program Department

January 2, 1975

APPENDIX

Table 2: RESEARCH COMMITTEE MEMBERS

H. B. Chenery, Vice President, Development Policy

B. Balassa, Consultant, Development Research Center

B. A. de Vries, Chief Economist, Latin America and the Caribbean Regional Office

H. Hughes, Deputy Director, Development Economics Department

A. Karaosmanoglu, Chief Economist, Europe, Middle East, and North Africa Regional Office

B. B. King, Research Adviser, Development Policy Staff

E. Lerdau, Assistant Director, South Asia Regional Office, Projects Department

H. Schulmann, Deputy Director, Programming and Budgeting Department

W. P. Thalwitz, Director, Western Africa Regional Office, Projects Department

H. G. van der Tak, Director, Projects Advisory Staff

H. Vergin, Assistant Director, East Asia and Pacific Regional Office, Projects Department

J. L. Waelbroeck, Adviser, Economic Analysis and Projections Department

M. Yudelman, Director, Agriculture and Rural Development Department

Table 3: COUNTRY REFERENCE OF EXTERNAL RESEARCH PROJECTS AND PARTICIPATING INSTITUTIONS[1]

Country	Project Code	Title	Participating Institution(s)
Argentina	201	Development Strategies in Semi-Industrial Countries	
	268[2]	International Comparison Project	Instituto Nacional de Estadistica y Censos, Buenos Aires
Bolivia	280	Land Reform in Latin America	Land Tenure Center, University of Wisconsin, Madison, USA
Brazil	213	Evaluation of Alternative Methods for Specifying Agriculture Sector Development Strategies	The Institute for Economics & Social Planning, Ministry of Planning & General Coordination, Brasilia
	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA Fundacao Getulio Vargas, Rio de Janeiro
	227	Highway Design Standards Study, Phase II	Transport Coordination Group (GEIPOT), Brasilia
	264	Student Loan Schemes	Fundacao IBGE - Instituto Brasiliero de Estadistica, Rio de Janeiro
	268[2]	International Comparison Project	Vargas Foundation, Rio de Janeiro
	269	Growth and Income Distribution in Brazil	Federal University of Brasilia, Brasilia
	271	Rural Development in Northeast Brazil	Federal Ministry of Planning, Rio de Janeiro Superintendencia do Desenvolvimento do Nordeste (SUDENE), Recife Federal University of Pernambuco, Pernambuco
	290	Labor Markets in a Rapidly Growing Economy	Centro de Planejamento Regional (CEDEPLAR), Belo Horizonte
	299	Economic Aspects of Household Fertility Behavior and Labor Supply in Northeast Brazil	Superintendencia do Desenvolvimento do Nordeste (SUDENE), Recife
	318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	
Cameroon	218	Rural Development in Africa	
Chile	203	Patterns of Demand and Savings in the Development Process	
	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA. Instituto Latino-Americano de Planificacion Economica y Social, Santiago
	280	Land Reform in Latin America	Land Tenure Center, University of Wisconsin, Madison, USA
Colombia	201	Development Strategies in Semi-Industrial Countries	
	203	Patterns of Demand and Savings in the Development Process	
	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA
	244	Student Loan Schemes	Instituto Colombiano de Credito Educativo y Estudios Tecnicos en el Exterior (ICETEX), Bogota; Departamento Administrative Nacionale de Estadistica (DANE), Bogota
	268[2]	International Comparison Project	Departamento Administrativo Nacional de Estadistica, Bogota
	270	Urban Public Finance and Administration	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	284	Growth Employment and Size Distribution of Income	Economic Growth Center, Yale University, New Haven, USA
	295	Industrial Capacity Utilization	Fedesarrollo, Bogota
	296	Distributive Impact of Public Expenditures	Colombian Data Company, Bogota
	298	Urban Land Use Policies: Taxation and Control	Universidad de los Andes, Bogota
	318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	
Costa Rica	247	Costa Rica Unemployment Survey	University of Costa Rica, San Jose
	276	Pricing and Investment in Telecommunications	Instituto Costorricense de Electricidad, San Jose; University of Costa Rica, San Jose
Dahomey	226	Programming in the Manufacturing Sector	
El Salvador	238	Analysis of Problems and Issues in Village Electrification	Comision Ejecutiva del Rio Lempa, San Salvador; Universidad Centro Americana, San Salvador
Ethiopia	218	Rural Development in Africa	
	231	Promotion of Construction Industry in Developing Countries	
	271	Ethiopia Feeder Road Study	Institute of Development Research, Haile Selassie University I, Addis Ababa
Ghana	224	Programming in the Manufacturing Sector	
	287	Industrial Policies and Economic Integration in West Africa	
Guyana	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
India	216	Agriculture Mechanization Study in India	Indian Institute of Management, Ahmedabad Punjab Agricultural University, Lodhiana
	221	Export Promotion and Preferences: India	Trade Development Authority, New Delhi
	226	Substitution of Labor and Equipment in Civil Works	Scott, Wilson, Kirkpatrick & Partners, London, UK; Director General Border Roads, New Delhi; Ministry of Transport, New Delhi; Central Water & Power Commission, New Delhi; State Public Works Departments
	227	Highway Design Standards Study, Phase II	Central Road Research Institute, New Delhi
	261	The Urban Data Needs of the IBRD	
	265	Labor Force Participation - Income and Unemployment	Bombay University, Bombay
	250	Mechanization in India: Its Extent and Effects on Hired Labor	
	268[2]	International Comparison Project	Central Statistical Organization, New Delhi
	270	Urban Public Finance and Administration	

Country	Project Code	Title	Participating Institution(s)
India (cont'd.)	302	Population Growth and Rural Poverty	Institute of Economic Growth, Delhi University, New Delhi; Institute of Development Studies, Sussex University, Sussex, UK
	315	Effects of Health and Nutrition Standards on Worker Productivity	
Indonesia	228	Substitution of Labor and Equipment in Civil Works	Directorate of Water Resources Development, Djakarta; Highway Department, Djakarta; Scott, Wilson, Kirkpatrick & Partners, London, UK
	242	Professional Structure in Southeast Asia	
	270	Urban Public Finance and Administration	
	315	Effects of Health and Nutrition Standards on Worker Productivity	Nutrition Research Institute, Bogor
Iran	231	Promotion of Construction Industry in Developing Countries	
	268/2	International Comparison Project	The Central Bank of Iran, Tehran
	277	Financing of Small Scale Industry	
Israel	201	Development Strategies in Semi-Industrial Countries	
	295	Industrial Capacity Utilization	Hebrew University, Jerusalem
Ivory Coast	204	Study in Multi-Level Programming: Ivory Coast	Ministry of Planning, Abidjan; Fonds d'Aide et de Cooperation, Abidjan; Food & Agriculture Organization, Rome
	287	Industrial Policies and Economic Integration in West Africa	Centre Ivoirien de Recherches Economiques et Sociales, Abidjan
Jamaica	241	The Urban Data Needs of the IBRD	
	270	Urban Public Finance and Administration	
Kenya	218	Rural Development in Africa	
	224	Programming in the Manufacturing Sector	
	227	Highway Design Study, Phase II	Ministry of Works, Nairobi; Transport & Road Research Laboratory, Crawthorne, UK
	228	Measurement of Road Width/Vehicle Speed Relationship	University of Nairobi, Nairobi; Transport & Road Research Laboratory, Crawthorne, UK
	231	Promotion of Construction Industry in Developing Countries	
	236	Property Values and Water Supply	Syracuse University Research Corporation, Syracuse, USA
	268/2	International Comparison Project	Central Bureau of Statistics, Nairobi
	302	Population Growth and Rural Poverty	Institute of Development Studies, Sussex University, Sussex, UK
	318	Pricing and Financing of Urban Public Services: Water Supply and Sewage Disposal	
Korea	201	Development Strategies in Semi-Industrial Countries	Korea Development Institute, Seoul
	203	Patterns of Demand and Savings in the Development Process	The Bank of Korea, Seoul
	206	Short-run and Long-run Influences upon Income Distribution	Korea Development Institute, Seoul
	223	Scope for Capital-Labor Substitution in the Mechanical Engineering Industry	Korea Institute of Science & Technology, Seoul
	224	Programming in the Manufacturing Sector	Korea Institute of Science & Technology, Seoul
	231	Promotion of Construction Industry in Developing Countries	
	241	The Urban Data Needs of the IBRD	
	245	Labor Force Participation - Income and Unemployment	
	268/2	International Comparison Project	Bank of Korea, Seoul; Bureau of Statistics, Seoul
	270	Urban Public Finance and Administration	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	298	Urban Land Use Policies: Taxation and Control	Seoul National University, Seoul
	307	CAMS	Korea Development Institute, Seoul
Malagasy	314	Malagasy Feeder Road	Swiss Federal Institute of Technology, Zurich; Bureau Central d'Etudes pour les Equipements d'Outre-Mer, Paris, France
Malawi	218	Rural Development in Africa	
	293	Evaluation of Lilongwe Land Development Program	
Malaysia	236	Property Values and Water Supply	Syracuse University Research Corporation, Syracuse, USA
	242	Professional Structure in Southeast Asia	
	243	Labor Market in Malaysia	Survey Research, Kuala Lumpur
	245	Labor Force Participation - Income and Unemployment	
	268/2	International Comparison Project	Department of Statistics, Kuala Lumpur
	294	Employment and Income Distribution in Malaysia	Economic Planning Unit & Department of Statistics, Kuala Lumpur
	295	Industrial Capacity Utilization	
	296	Distributive Impact of Public Expenditures	Eastern Market Assessment Surveys, Kuala Lumpur; Dept. of Statistics, Ministry of Education, Ministry of Health, the Treasury, the Malaysia Govt., Kuala Lumpur
	297	Urban and Regional Subsystems in West Malaysia	
	307	CAMS	University of Malaysia, Kuala Lumpur

Country	Project Code	Title	Participating Institution(s)
Malaysia (cont'd.)	317	Analytics of Change in Rural Communities	Food & Agriculture Organization, Rome
Mali	218	Rural Development in Africa	
	287	Industrial Policies and Economic Integration in West Africa	
Mexico	203	Patterns of Demand and Savings in the Development Process	Secretaria de la Presidencia, Mexico City
	216	Agricultural Sector in Mexico	Secretaria de la Presidencia, Mexico City
	224	Programming in the Manufacturing Sector	
	267	Standards of Reliability of Urban Electricity Supply	Overseas Consultancy Service, London, UK
	280	Land Reform in Latin America	Centro de Investigaciones Agrarias, Mexico City
Nigeria	218	Rural Development in Africa	
	302	Population Growth and Rural Poverty	University of Nigeria, Naukka; Institute of Development Studies, Sussex University, Falmer, UK
Pakistan	212	Reappraisal of Credits for Financing Farm Mechanization in Pakistan	Agricultural Development Bank, Karachi; University of Manchester, Manchester, UK
Peru	203	Patterns of Demand and Savings in the Development Process	
	225	Industrial Capacity Utilization in Selected Latin American Countries	Accuerdo de Cartagena, Lima; Center for Latin American Development Studies, Boston University, Boston, USA
	261	The Urban Data Needs of the IBRD	
	270	Urban Public Finance and Administration	
	280	Land Reform in Latin America	Fundacion para el Desarrollo Nacional, Lima; Land Tenure Center, University of Wisconsin, Madison, USA
Philippines	262	Professional Structure in Southeast Asia	
	268[2]	International Comparison Project	National Census and Statistics Office, Manila
	284	Growth Employment and Size Distribution of Income	Economic Growth Center, Yale University, New Haven, USA
	295	Industrial Capacity Utilization	National Economic Development Authority, Manila
	307	CAMS	University of the Philippines, Manila
Portugal	213	Evaluation of Alternative Methods for Specifying Agricultural Sector Development Strategies	Center for Agricultural Economic Studies, Gulbenkian Institute, Lisbon
Republic of China	201	Development Strategies in Semi-Industrial Countries	
	262	Professional Structure in Southeast Asia	
	284	Growth Employment and Size Distribution of Income	Economic Growth Center, Yale University, New Haven, USA
	307	CAMS	
Senegal	224	Programming in the Manufacturing Sector	
	287	Industrial Policies and Economic Integration in West Africa	
Singapore	201	Development Strategies in Semi-Industrial Countries	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	320	Urban Traffic Restraint (Singapore)	Government of Singapore, Singapore; Survey Research Singapore Ltd., Singapore
Sri Lanka	302	Population Growth and Rural Poverty	Marga Institute, Colombo; Institute of Development Studies, Sussex University, Falmer, UK
Sudan	239	Pricing and Investment in Electricity Supply	
Tanzania	218	Rural Development in Africa	
	224	Programming in the Manufacturing Sector	
	278	Project Evaluation Methodology: Education Attainments	Institute of Education, University of Dar es Salaam, Dar es Salaam; International Institute of Educational Planning (UNESCO), Paris, France
	322	Raising the Productivity of Small Farms	Food & Agriculture Organization, Rome; Tanzania Rural Development Bank, Dar es Salaam; University of Dar es Salaam, Dar es Salaam
Thailand	230	Impact on Port Congestion of Ship Rescheduling	
	262	Professional Structure in Southeast Asia	
	268[2]	International Comparison Project	National Economic Development Board, Bangkok; Ministry of Commerce, Bangkok
	307	CAMS	Thammasat University, Bangkok
	308	Evaluation of Asian Data on Income Distribution	Economic and Social Commission for Asia & the Pacific, Bangkok
	311	Public Utility Pricing and Investment	
Togo	224	Programming in the Manufacturing Sector	
Trinidad & Tobago	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
Tunisia	239	Pricing and Investment in Electricity Supply	
	270	Urban Public Finance and Administration	
	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden
	291	Benefits of Schooling for Workers	The University of Tunis, Tunis
Turkey	224	Programming in the Manufacturing Sector	
	239	Pricing and Investment in Electricity Supply	
Uganda	224	Programming in the Manufacturing Sector	East Africa Development Bank, Kampala
Venezuela	225	Industrial Capacity Utilization in Selected Latin American Countries	Center for Latin American Development Studies, Boston University, Boston, USA Oficina de Coordinacion y Planificacion (CORDIPLAN), Caracas

Country	Project Code	Title	Participating Institution(s)
Venezuela (cont'd.)	268/2	International Comparison Project	Banco Central de Venezuela, Caracas; Ministerio de Fomento, Caracas
	280	Land Reform in Latin America	Centro de Estudios del Desarrollo, Caracas; Fundacion para la Capicitacion e Investigacion Applicada a la Reform Agraria, Caracas
Yemen Arab Republic	229	Yemen Arab Republic Feeder Road Study	Central Planning Organization, Sanaa; Swiss Federal Institute of Technology, Zurich, Switzerland
Yugoslavia	706	Short-run and Long-run Influences upon Income Distribution	
	289	Development Strategies for Smallholder Agriculture in Yugoslavia	Institute of Agricultural Economics (IEP), Belgrade
Zambia	277	Financing of Small Scale Industry	Swedish International Development Authority, Stockholm, Sweden

MEMORANDUM: The following is a list of participating institutions located in countries other than the country which is the subject of the external research project.

Location of Participating Institution	Institution	Country of Project	RPO Code
France	Fonds d'Aide et de Cooperation	Ivory Coast	204
	Bureau Central d'Etudes pour les Equipements d'Outre-Mer	Malagasy	314
Japan	International Development Center of Japan	Southeast Asian Countries	279
Netherlands	International Reference Center for Water Supply		312
Sweden	Swedish International Development Authority	Colombia, Guyana, Iran, Korea, Singapore, Trinidad & Tobago, Tunisia, Zambia	277
Switzerland	Swiss Federal Institute of Technology	Yemen Arab Republic	229
	Swiss Federal Institute of Technology	Malagasy	316
United Kingdom	Scott, Wilson, Kirkpatrick & Partners	India, Indonesia	226
	Transport & Road Research Laboratory	Kenya	227
		Kenya	228
	University of Manchester	Pakistan	212
	Overseas Consultancy Service	Mexico	267
	Institute of Development Studies, Sussex Univ.	India, Kenya, Nigeria, Sri Lanka	302
United States	Land Tenure Center, University of Wisconsin	Bolivia, Chile, Peru,	280
	Economic Growth Center, Yale University	Colombia, Philippines, Taiwan	284
	Boston University, Center for Latin American Studies	Brazil, Chile, Colombia, Ecuador, Peru, Venezuela	225
	Harvard University		275
	University of Pennsylvania	Multi-Country	268/2
	Syracuse University Research Corporation	Kenya, Malaysia	236
	The Urban Settlement Design Group, MIT		316
International	The Committee of Asian Manpower Studies (CAMS)	Thailand, Korea, Taiwan, Philippines, Malaysia	307
	Food & Agricultural Organization	Ivory Coast	204
		Malaysia	317
		Tanzania	322
	International Institute of Educational Planning (UNESCO)	Tanzania	278
	Joint Studies on Latin American Economic Integration (ECIEL)	Multi-Country	274
			285/3
	Economic Commission for Latin America (ECLA)	Multi-Country	283/4
			310/5
	United Nations Statistical Office (UNSO)	Multi-Country	268/2

/1 Excludes research projects which are not specific to individual countries, e.g. commodity studies or broad comparative analysis.
/2 The International Comparison Project is executed by Prof. Kravis at the University of Pennsylvania, Philadelphia, and the United Nations Statistical Office, New York in collaboration with the statistical services of the European Economic Community, Economic Commission for Europe and the Economic Commission for Africa and statistical offices in each of the countries being researched. The developing countries are Argentina, Colombia, India, Iran, Kenya, Korea, Malaysia, Philippines, Thailand, Venezuela.
/3 The research project covers urban areas in Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Peru, Uruguay and Venezuela.
/4 The 13 Latin American countries are: Argentina, Brazil, Colombia, Costa Rica, Chile, Uruguay, Dominican Republic, Ecuador, Honduras, Mexico, Panama, Peru, Venezuela.
/5 The countries involved are: Argentina, Brazil, Colombia, Mexico, Israel, Yugoslavia, India, Korea.

January 2, 1975

APPENDIX

Table 4: COMPLETED RESEARCH PROJECTS

RPO No.	Project Title	Report
205	Cross-Section Analysis of Development Process	1. H. B. Chenery and A. Carter, "Foreign Assistance and Development Performance 1960-1970", American Economic Review, May 1973. World Bank Reprint No. 9. 2. H. B. Chenery and M. Syrquin, "Patterns of Development 1950-1970". Oxford University Press (forthcoming), 1975. 3. N. Carter, "A Handbook of Expected Values of Structural Characteristics", April 1974. Bank Staff Working Paper No. 154.
211	Prospects for Jute and Competition from Synthetics	1. E. Grilli and A. Morrison, "Jute and the Synthetics", January 1974. Bank Staff Working Paper No. 171.
215	Agriculture Research and Productivity Changes	1. Y. Kislev and R. Evenson, "Agricultural Research and Productivity", Yale University Press, 1975.
219	Expansion in Manufacturing for Exports in Developing Countries	1. T. Ozawa and Y. Chang, "Expanding Employment Opportunities in LDC Export Manufacturing Industry: An Analysis of the Offshore Activities of the Japanese Electronics Industry", March 1973 (unpublished). 2. T. Ozawa, "Labor Resource Oriented Migration of Japanese Industries to Taiwan, Singapore and South Korea", August 1972. Bank Staff Working Paper No. 134.
220	Industrialization and Trade Policies for the 1970's	1. H. Hughes, "Trade and Industrialization Policies: The Political Economy of the Second Best", February 1973. Bank Staff Working Paper No. 143. 2. H. Hughes, "Prospects for Partnership - Industrialization and Trade Policies in the 1970's", The Johns Hopkins University Press, 1973.
221	Export Promotion and Preferences in India	1. D. Wall, "The Role of Exports in India's Development Program", 1972 (unpublished). 2. D. Wall, "Export Development and Promotion Policies", 1972 (unpublished). 3. D. Wall, "The Impact of the Generalized Scheme of Preferences on India's Exports", 1973 (unpublished). 4. D. Wall, "Export Policy", 1973 (unpublished).
230	Impact on Port Congestion of Ship Rescheduling	1. Asian Institute of Technology, "Application of State Dependent Queuing Models for Analyzing Ship Arrival Rates at Ports", November 1972 (unpublished).
231	Promotion of Construction Industry	1. J. de Wilde & Associates, "A Framework for the Promotion of Construction Industries in the Developing Countries", November 1973. Bank Staff Working Paper No. 168.
234	Urban Transport and the Automobile	1. W. Owen, I. Ozuata, I. Bradfield, "Automobile and Cities - Strategies for Developing Countries", September 1973. Bank Staff Working Paper No. 162.
236	Property Values and Water Supply Benefits	1. R. Bahl, S. Coellen and J. Warford, "Impact of Water Supply and Sewerage Investment on Property Values", September 1973 (unpublished). 2. R. Bahl, S. Coellen and J. Warford, "Estimation of the Economic Benefits of Water Supply and Sewerage Projects", October 1973 (unpublished).
237	Village Water Supply	1. R. Saunders and J. Warford, "Village Water Supply and Sanitation in LDC's", March 1974. Public Utilities Report No. RES2. 2. R. J. Saunders, "Village Water Supply in Developing Countries: Problems and Policies, March 1973 (unpublished).
240	Economic Models of Internal Migration	1. P. Brigg, "Some Economic Interpretation of Case Studies of Urban Migration in Developing Countries", March 1973. Bank Staff Working Paper No. 151.
246	Cost Effectiveness of Alternative Learning Technologies in Industrial Training	1. M. Zymelman, with the cooperation of M. Horowitz, E. Hernstadt and A. Woodruff, "Cost Effectiveness of Alternative Learning Technologies in Industrial Training - A Study of In Plant Training and Vocational Schools", December 1973. Bank Staff Working Paper No. 169.
248	Economic Issues of Health	1. P. Newman, "A conceptual Framework for the Planning of Medicine in Developing Countries", May 1973. Bank Staff Working Paper No. 153.
250	Mechanization in India - Its Extent and Effect on Hired Labor	1. B. Lockwood, "Notes on Farm Mechanization and the New Technology in Indian Agriculture", April 1972 (unpublished). 2. B. Lockwood, "Patterns of Investment in Farm Machinery and Equipment in Indian Agriculture", January 1973 (unpublished).
251	Survey of Non-Formal Rural Education	1. P. Coombs and M. Ahmed, "Attacking Rural Poverty: How Non-Formal Education can Help", The Johns Hopkins University Press, 1974.
256	Employment and Capital Labor Substitution	1. Y. Mundlak, "Distortion in the Factor Markets and the Short Run Equilibrium", "Functional Forms of Production Functions", "Estimation of Production Functions", April 1973 (unpublished) 2. G. Ranis, "Industrial Sector Labor Absorption", Economic Development and Cultural Change, Vol. 21, No. 3, April 1973 (World Bank Reprint Series: No. 6). 3. S. K. Singh, "Evaluation of Employment Prospects in LDC's", October 1970. "Aggregate Production Function Causes of Growth and Measures of Dynamic Efficiency", January 1973. Bank Staff Working Paper No. 138.
281	Comparative Analysis of Resource Allocation in Cocoa Production	1. E. Yeung, "Comparative Advantage in Cocoa Production: A Methodological Annex", Forthcoming in Bank's Occasional Paper series.

January 7, 1975

WORLD BANK RESEARCH PROGRAM

Table 5: RESEARCH INSTITUTIONS DOCUMENTS EXCHANGE PROGRAM

List of Participating Institutions

EAST AFRICA

1. Institute of Development Research
   Haile Selassie I University, Addis Ababa, Ethiopia
2. Institute for Development Studies
   University of Nairobi, Kenya
3. Economic Research Bureau
   University of Dar es Salaam, Tanzania

WEST AFRICA

1. Association of African Universities, Accra, Ghana
2. Institute of Statistical, Social & Economic Research
   University of Ghana, Legon, Ghana
3. Centre Ivoirien de Recherches Economiques et Sociales
   Universite d'Abidjan, Ivory Coast
4. Institute for Agricultural Research, Zaria, Nigeria
5. Nigerian Institute of Social & Economic Research
   University of Ibadan, Nigeria

EAST ASIA AND PACIFIC

1. Research School of Pacific Studies
   Australian National University, Canberra, Australia
2. The Institute of Economic Research
   Hitotsubashi University, Tokyo, Japan
3. Development Academy of the Philippines, Rizal, Philippines
4. University of the Philippines, Quezon City, Philippines

SOUTH ASIA

1. Bangladesh Academy for Rural Development, Comilla, Bangladesh
2. Bangladesh Institute of Development Economics, Dacca, Bangladesh
3. Bureau of Economic Research, Dacca, Bangladesh
4. Bombay University, Department of Economics, India
5. Gokhale Institute of Politics and Economics, Poona, India
6. Institute of Economic Growth
University of Delhi, India
7. National Council of Applied Economic Research, New Delhi, India
8. Centre for Economic Development and Administration, Kathmandu, Nepal
9. Secretary Planning Model, Govt. of Pakistan, Islamabad, Pakistan
10. Academy of Administrative Studies, Colombo, Sri Lanka

EMENA

1. Vienna Institute for Development, Austria
2. Institut de Recherches en Economie de la Production, Paris, France
3. Deutsches Institut fur Entwicklungspolitik, Berlin, Germany
4. Friedrich-Ebert-Stiftung Forschungsinstitut, Bonn, Germany
5. IFO Institut fur Wirtschaftsforschung
African Studies Centre, Munich, Germany
6. University of Heidelberg, South Asia Institute, Germany
7. Institute for World Economics, Hungarian Academy of Sciences, Budapest, Hungary
8. Economic Research Institute, University of Tehran, Iran
9. FINAFRICA, Centro per l'assistenza
finanziaria ai Paesi Africani, Milano, Italy
10. Instituto di Studi per lo Sviluppo Economica, Napoli, Italy
11. Scuola di Sviluppo Economico, Rome, Italy

12. Institute of Social Studies, Resource Development Dept., The Hague, Netherlands

13. The Central School of Planning & Statistics Research Institute for Developing Countries, Warsaw, Poland

14. Institute for International Economic Studies University of Stockholm, Sweden

LATIN AMERICA AND CARIBBEAN

1. Instituto de Estudios Politicos para America Latina, Buenos Aires, Argentina

2. Library of Instituto Torcuato di Tella, Buenos Aires, Argentina

3. Instituto Brasileiro de Economia Dept. of Statistics & Econometrics, Rio de Janeiro, Brazil

4. Catholic University of Chile Centro de Estudios de Planificacion Nacional (CEPLAN), Santiago, Chile

5. Fundacion para la Educacion Superior y el Desarollo (FEDESARROLLO), Bogota, Colombia

6. Instituto de Investigaciones Escuela de Ciencias Economicas y Sociales University of Costa Rica, San Jose, Costa Rica

7. Programa Centroamericano de Ciencias Sociales Consejo Superior Universitario, San Jose, Costa Rica

8. Direccion de Estudios Economicos Secretaria de la Presidencia, Mexico City, Mexico

9. Instituto de Desarollo de los Recursos Humanos del Estado de Mexico, Toluca, Mexico

Research Projects Gen

The Secretary   January 7, 1975

B. B. King, Development Policy Signed B. B. King

Annual Report on Bank Research

Mr. McNamara has authorized the distribution of the attached report to the Executive Directors, and asked that it be done by January 8 (see attached memorandum). The Board discussion is scheduled for February 4.

The booklet Abstracts of Current Studies is still with the printers and is expected to be available on Friday, January 10. In your memorandum to the ED's, kindly note that this booklet will be distributed to them separately.

The report should be bound in the "policy paper" style; however, we are informed by Reports Desk that no number need be assigned.

Attachment

DCRao:gm

Research

Mr. Enzo R. Grilli, Economist, EPD/CE January 6, 1975

Wouter Tims, Director, EPD WT

Terms of Reference: Rubber Study - Interviews with Goodrich and Goodyear Rubber Companies' Officials in Akron, Ohio, January 8-9, 1975.

1. On January 8, 1975 you will proceed to Akron, Ohio for interviews with the officials of Goodrich and Goodyear Rubber Companies on the future prospects of synthetic rubbers in the United States.

2. You are expected to be back at Headquarters on January 10, 1975.

cc and cleared with Mr. S. Singh

EGrilli:cw

INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

OFFICE MEMORANDUM

Research Property

TO: Mr. Robert S. McNamara, President   DATE: January 3, 1975

FROM: Hollis B. Chenery, VP-DP

SUBJECT: Annual Report on External Research

1. Attached is a draft of the annual report on the Bank's external research program for your review prior to distribution to the Executive Directors. Comments of the Research Committee on a prior draft have been incorporated. The Board discussion is scheduled for February 4.

2. The booklet World Bank Research Program - Abstracts of Current Studies, which is now being printed, is scheduled to be distributed to the Executive Directors in conjunction with the report. Page proofs of the booklet are attached.

3. A draft of your memorandum to the Executive Directors is also attached. I think it would be useful if you added a personal comment on the uses of research from your own point of view.

Attachments - 3

1/6
Excellent. Approved for distribution to E.D.'s (distribute by 1/8)

DCRao:HBChenery:di