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TRANSPORT RESEARCH PROGRAM

Progress Report

June 12, 1964 - December 12, 1964

The Brookings Institution
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Contents

	Page
Review of Progress	1
Publication Schedule	4
Training Program	7
Relations With Other Organizations	8
Staff and Committee Membership	10
Appendix	12

Review of Progress

The goal of the Brookings Transport Research Program is to shed light on the role of transport in the development process by focusing on several principal categories of problems. These include the evaluation of the impact of transport investments; methods of determining future transport requirements; the economics of alternative technologies; influencing the demand for transport; organizing, administering, and financing the transport system. The first publication in the program, Strategy for Mobility by Wilfred Owen, provided an overview of each of these categories. The next volume to be issued, Transport Investment and Economic Development, edited by Gary Fromm, also makes contributions to several of the problem areas.

Further work has proceeded in all these areas during the first two and a half years of the program, and there are now twenty-six separate reports in prospect.

Evaluation of the Impact of Transport Investments

A number of case studies has been conducted in Latin America for the purpose of observing the economic and social impacts that have followed from transport investment programs. The effort has been designed in part to analyze specific projects and in part to improve methodology. Additional case studies by other organizations have been analyzed along with the Latin American field work.

A report has been prepared by Professor George W. Wilson summarizing the lessons from these cases in a book entitled, The Impact of Transport on Development. The manuscript has been reviewed by a reading committee and is now in the process of revision by the author.

In addition to the Wilson volume, several cases have been selected for publication in separate monographs. These include:

"The Cochabamba-Santa Cruz Highway in Bolivia," by Barbara R. Berman.

"The Atlantic Highway in Guatemala," by Martin S. Klein.

"The Littoral Highway in El Salvador," by Leon V. Hirsch.

Additional cases still in process include:

"The Atlantico Railroad in Colombia," by Joseph R. Hartley.

"Studies of Highway Transport in Malaya," by William B. Hughes.

Determining Transport Requirements

The Brookings program has approached the task of estimating transport requirements in several ways. First, a detailed analysis has been made of eighty-one pre-investment surveys of transport proposals. These reports were financed by the Agency for International Development and its predecessors and the World Bank. The analysis, undertaken by Eleanor B. Steinberg and Grace Finne, has provided the basis for a better understanding of the present approaches and shortcomings of economic feasibility surveys.

Suggested improvements of feasibility studies have been made in a report entitled, "Preparation and Evaluation of Transport Projects," by Clell G. Harral. The report is now being reviewed informally by staff members of A.I.D. prior to its final submission to a reading committee. A more extensive analysis of transport investment decisions by Professor Tillo E. Kuhn is in first draft.

In addition to analyzing the transport requirements on a project basis, several studies look more broadly at transportation system requirements. These include an assessment of Syrian transport requirements by Nuhad J. Kanaan, and a study of transport and Latin American economic integration by Robert T. Brown. The first phase of the economic integration study, entitled "Ocean Transport and the Economic Integration of South America," has been completed and is in the process of review.

A new project concerned with the role of transport in Middle East economic integration has been approved by the Advisory Committee. This project will be undertaken by Nuhad J. Kanaan (see Appendix, page 12).

The Economics of Alternative Technologies

A major effort in this area is being conducted at Harvard University through studies of transportation planning in underdeveloped areas, and choice of transport technology in relation to economic development and

planning. These studies will be concerned with the physical and cost characteristics of transport media, systems analysis principles, and development of a model that will be adaptable to various situations (i.e., resource base, geography, conditions of demand). The model will be tested in hypothetical cases reflecting different conditions encountered in underdeveloped areas.

Influencing the Demand for Transport

A number of approaches to influencing transport demand has been indicated in Wilfred Owen's volume, Strategy for Mobility, published in August 1964. These include such possibilities as urban design, plant location, agricultural processing, energy resources, and communications. A study of the relation between energy policy and transportation is now in process by Professor Edward S. Mason. A study of plant location and transport requirements in Latin America by David Kendrick is also underway. The Northwestern University study on the relation between African urbanization and the hinterland also looks at transportation from the demand standpoint.

Organization, Administration, and Financing of the Transport System

Work on the organization, administration and government control of transport is in process under the direction of Edwin T. Haefele. This group of studies will include a report on transport pricing policy by Sam Weiner and Alan A. Walters; railroad pricing policy in South Central Africa by Edwin T. Haefele and Eleanor B. Steinberg; and separate contributions on government regulation by Alan A. Walters and George W. Wilson.

A tentative agreement has been reached with the Resources and Transport Division of the United Nations for a cooperative study of methods of organizing and administering the transport function throughout the world. The Brookings part of this undertaking is under the direction of E. T. Haefele.

A study in the area of transport administration is being done at Syracuse University under the direction of John Lindeman. The objective of this work is to analyze stipulations contained in loan agreements, and experience with various administrative innovations.

Publication Schedule

Of the total of twenty-six reports in various stages of completion, fourteen are in final draft or in various stages of committee review or editing. A list of all projects and estimated dates of completion follows. The results will appear as Brookings books or monographs, and as articles in professional journals.

Title	Author	Status
Strategy for Mobility	W. Owen	Published August 1964
Transport Investment and Economic Development	G. Fromm, ed.	In press for early 1965 publication
Syrian Transport	N. J. Kanaan	Manuscript to be completed in December 1964 for submission to professional journal
Ocean Transport and the Economic Integration of South America	R. T. Brown	Manuscript completed in November 1964 for publication in 1965
The Atlantic Highway in Guatemala	M. S. Klein	Manuscript in final editing stage for publication in 1965
The Littoral Highway in El Salvador	L. V. Hirsch	Manuscript in final editing stage for publication in 1965
The Cochabamba-Santa Cruz Highway in Bolivia	B. R. Berman	Manuscript in final editing stage for publication in 1965
Analysis of 81 Pre-Investment Surveys	G. W. Finne E. B. Steinberg	Report in final editing process for distribution early 1965

Title	Author	Status
Government Control of Transport	E. T. Haefele A. A. Walters G. W. Wilson	Research in process, manuscript expected early 1965
The Atlantico Railroad in Colombia	J. R. Hartley	Manuscript expected Spring 1965
The Preparation and Evaluation of Transport Projects	C. G. Harral	Manuscript completed November 1964 for publication in 1965
The Impact of Transport on Development	G. W. Wilson	Manuscript in final editing process for publication in 1965
Cement Industry in the U.S.S.R.	A. J. Abouchar	Manuscript expected December 1964 for publication in 1965
Transportation and Energy Policy	E. S. Mason	Research in process
Financing Transport Facilities	S. Weiner	Research in process
Pre-Investment Survey Techniques	T. E. Kuhn	Research in process
Administration of Transport Agencies	J. Lindeman	Research in process, expected Spring 1965
Transport and Latin American Economic Integration	R. T. Brown	Research in process
Rural-Urban Problem in Africa	L. Moses	Research in process
Transport in Malaya	W. B. Hughes	Research in process
Plant Location in Latin America	D. Kendrick	Research in process

Title	Author	Status
Transport Integration, Middle East	N. J. Kanaan	Research in process
Regional Programming of Transport Investment	C. G. Harral	Research in process
Choice of Transport Technology	M. Wohl B. V. Martin	Research in process
Soviet Transport	H. Hunter	Research in process
Transport Policy and Development	J. R. Meyer	Research in process

Training Program

The A.I.D. contract with the Brookings Institution calls for training as well as research. Thus far the program has directly involved a staff of forty, most of whom have transferred their interests and energies either from general economics to problems of transport and development, or from transport at home to transport in less developed areas. Several persons on the Brookings program have taken foreign assignments in the transportation field.

The major formal effort to develop interest and talent in the transport area has been at Harvard University, where the Transport Research Seminar is in its third year. This project is under the direction of Professor John R. Meyer, assisted by Martin Wohl and Brian V. Martin. Enrollment totals twenty-seven graduate students. There are fifteen Americans and twelve foreigners in the group, nineteen from Harvard and eight from the Massachusetts Institute of Technology. Eight Ph.D. theses are in preparation, the authors and topics of which are as follows:

Armando Lago	Structure of Highway Trucking Cost in Underdeveloped Countries
Mahlon Straszheim	Efficiency in the National Airlines Industry, with Special Emphasis on its Implication for Smaller Nations
Leon M. Cole	Transportation Planning and Capital Budgeting under Conditions of Uncertainty
Hrishikesh Vinod	A Programming Approach to Capital Budgeting for Transportation
Gerald Kraft	Elasticity of Demand for Freight and Passenger Transportation in Underdeveloped Countries
Robert Jones	Implications for Transportation and Other Social Overhead Costs of Different Forms of Urban Development in Underdeveloped Countries
Donald Shoup	Value of Travel Time in Different Economies
Koichi Mera	Compatibility of Regional Income Equalization with Other Economic Objectives

Relations With Other Organizations

The Brookings contract also calls for cooperative efforts with United States Government agencies as well as private and international agencies. This has been accomplished by the exchange of documents, by lectures and assignments of staff members overseas, and by participation in seminars and conferences.

For example, a program has been arranged for the Annual Meeting of the Highway Research Board of the Highway Research Council, Academy of Sciences, in January, 1965. The purpose will be to introduce the subject of transport and development and to stimulate further interest on the part of the Board in sponsoring research in this area.

The World Bank is undertaking a study of critical areas of the Indian development effort to provide a comprehensive assessment of policies now in effect to accelerate the economic growth of that country. As part of the program an arrangement has been made with the Bank for an evaluation of Indian transport policy by Wilfred Owen and other members of the Brookings Transport Research Program staff.

The Transport Research Program has also assisted in organizing the General Services Administration Institute's five-day symposium on National Transport Policy. A presentation by E. T. Haefele entitled, "The Relation of Transport to Economic Planning in the Developing Countries," was made at the symposium.

Other staff activities include:

Wilfred Owen: Symposium on The Future by Design, New York, October 14-16, 1964, "The Key Issue of Mobility," lessons for the United States from experience in developing countries.

Robert T. Brown: Lectured at the Economic Development Institute of the World Bank on the criteria and techniques for evaluating transport projects, November 16, 1964.

Brown: Participated in a seminar on industrial location in Latin America in the Center for Studies in Economic Development at the University of Los Andes, Bogota, Colombia, November 11-14, 1964.

Tillo E. Kuhn and Clell G. Harral: Participated in a seminar on project evaluation with A.I.D. staff members at the National Academy of Sciences, June 24, 1964.

Harral: Guest lecturer at African Workshop, Syracuse University, on the topic of the role of transportation in economic development, July 22, 1964.

Staff and Committee Membership

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Yale University
International Bank for Reconstruction
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(ex officio)

David Tilson
John Wilkes

Agency for International Development
Agency for International Development

Appendix

Transportation and Economic Integration, Arab Middle East
Nuhad J. Kanaan

One additional study was approved by the Advisory Committee on October 9, 1964, concerned with the role of transportation in regional economic integration. Arab countries of the Middle East are taking a variety of measures that will eventually lead to regional economic integration. This is illustrated in the number of plans drawn under the auspices of the Arab League, and through economic cooperation among the various Arab states. While there have been setbacks in certain instances, the overall trend is definitely in the direction of economic integration. Several steps will need to be taken to accomplish this objective:

1. Identify the basis on which integration can be planned.
2. Estimate the present and foreseeable future movements of people and goods that will be generated by integration.
3. Plan a transport network capable of serving integration plans in an efficient manner.

The study will be conducted in three parts. The first will be the identification and examination of the patterns of movements of goods and people throughout the region under present conditions, and examination of the network which serves this interaction. This will be done as follows:

1. Identification of surplus areas and their important products.
2. Identification of demand areas for these important products.
3. Identification of the points of entry and of the ultimate destination of goods in transit.
4. Analysis of the present flow of people and goods within the region.
5. Analysis of present network and evaluation of ability to serve the proposed economic integration of the region. (Evaluation of a number of proposals for a pan-Arab highway system will also be undertaken.)

The second part will be an analysis of the foreseeable changes that are likely to occur in the future, resulting from natural increases and changes in economies of scale and expansion of markets. This will include:

1. Projecting future supply and demand and identifying foreseeable economic expansion resulting from projects that are underway or that will be initiated in the near future.
2. Estimating future flow of people and goods generated by this expansion.
3. Proposing changes in the transport network to serve this regional expansion.

A third part of the study will examine the major port facilities connected to the network and examine their efficiency or their constraint on the movement of goods and people from one part of the region to the other.