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P&P

Evaluation of Projects Benefits

Mr. Ballantine	12/9/68	12/9/68
Mr. Gold	1/3/69	Jan 31/69
Remington Rand	 131 Library Bureau Form Cat. No. 1153.3	

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DECEMBER 1968.
FOR FURTHER CORRESPONDENCE SEE:
1969 - 1971.

RECORDS MANAGEMENT SECTION
February 1969

Mr. Warren C. Baum

December 24, 1968

A. David Knox *ADK*

Sector Studies and Project Evaluation

I have read with interest the copy of Mr. van der Tak's memorandum of November 25 on the above, which you let me have. I agree wholeheartedly with van der Tak that there is an urgent need to strengthen our work on sector studies and, indeed, generally on the whole question of project identification and preparation.

I think, however, that he may be laboring under some misunderstanding of the attitude of the Projects Departments on this matter. In some sectors it is in the nature of the work that any review of the borrower's system is coterminous with a sector review. This is true, for example, in power. Nevertheless, I know for myself that I am profoundly concerned about our inability to devote more time to sector studies and it is my impression from conversations that the other Projects Departments are at least as concerned as I. The problem, unfortunately, is basically one of staff. I personally found that in the last two years I have had to justify considerable requests for substantial staff additions to carry out appraisal and supervision work. When asking for so many people for these purposes it has been doubly difficult to obtain agreement to add additional positions for other tasks. This is particularly true of sector studies where one has faced the problem of demonstrating the need in clear quantitative terms. I now hope that the Five-Year Plan will make this easier. At least we can look ahead and note the countries in which the Bank hopes to lend in the coming five years. It is then a fairly simple matter to decide where preparatory work is needed and of what kind.

Unfortunately, this still leaves quite a big gap, consisting of countries where no lending is proposed in a particular sector and where we have no information about the sector. In case of this Department, this is particularly true of telecommunications and water supply. In those two sectors the number of countries on which we have no information is so large that we cannot launch sector studies on all of them at once. We must draw up some order of priority. The question is how. As an experiment I have recently sent a memorandum to the Western Hemisphere Department giving a list of countries in Latin America on which we have no information on water supply and for which no water supply lending at present appears in the Five-Year Plan. My question has been, firstly, is it likely that we might consider lending if we knew more about the sector in any of these countries and, secondly, what is the division of labor between the Bank and the Inter-American Development Bank? I hope that this may give us at least a few countries in which we should carry out exploratory work to try to determine how to go on with the study of the sector. If the experiment works, I will try it on the other Area Departments and also for telecommunications.

December 24, 1968

I am less convinced than Mr. van der Tak seems to be that the qualifications needed for sector studies are different from those needed for appraisal and supervision work. After all, an important task in any sector review is that of comparing projects. This is very akin to appraisal work. Similarly I am less convinced than he that those engaged on sector studies should be organized in a separate unit. There is much to be said for giving a Division Chief a defined area of responsibility and instructing him to carry out whatever work is necessary within that area to identify, prepare and appraise projects, and so on. Whatever we do, however, to improve our handling of sector studies, I hope we will avoid adding still further to the diffusion of responsibility within the Bank and the uncertainty it produces.

cc: Messrs. Kamarck
van der Tak

ADKnox/mv

ROUTING SLIP

Date

12/31/68

NAME

ROOM NO.

Mr. Sadove

~~Mr. Sealat~~

Let me have
the file -

To know up situation of

Propose - please off

To handle

Note and File

Appropriate Disposition

Note and Return

Approval

Prepare Reply

Comment

Per Our Conversation

Full Report

Recommendation

Information

Signature

Initial

Send On

REMARKS

Memo from Baum 11/29

May I have your comments
in general, and your specific
Suggestions on paragraph 12

From

Warren C. Baum

OFFICE MEMORANDUM

TO: Mr. Warren C. Baum

DATE: December 24, 1968

FROM: Herman G. van der Tak

SUBJECT: Project Data Reporting System: Implementation

1. I refer to my memorandum of October 24 on the follow-up of projects and your subsequent memorandum of 3 December, with attachments, and earlier discussions on this subject. We are pleased to find general support for our proposal. Further progress will require decisions on the following issues: (i) what data are to be reported for what projects, how are the data to be collected and reported, and how are they to be stored; (ii) what will be the responsibility of the various departments and divisions involved in making the project data reporting system work, and what staff arrangements need to be made for this purpose; (iii) where and how do we start with the implementation of the reporting system.

I. Substance of Project Data Reporting System

2. Standardized lists of data requirements will be prepared for each type of project. The list should bear in mind the two-fold objective of the data reporting system, i.e., (i) to facilitate monitoring of the progress of implementation of the projects to meet the operational needs of the Bank (and hopefully of the national authorities concerned); (ii) to determine whether projections of the project costs and benefits made during appraisal are reasonable and how they could be improved.

3. The scheme is unlikely to be successful unless data requirements are limited to what project authorities can reasonably be expected to provide. Requested data should be easy to collect. Care should be taken to ask only for the most important data, and to limit the frequency with which they have to be reported. The frequency of reporting may need to be somewhat higher for the purpose of monitoring than for research, but the general principle should be to economize as much as possible on the data reporting requirements.

4. There will be a need to determine the proper compromise between ease of collection of data and their usefulness as indicators. The system should be expected to evolve when practical experience is gained on what can be done and what are the most useful indicators of the progress of a project and its benefits and costs. Staff should be available to give technical assistance in the field in organizing data collection and to explore and give advice on how data collection may usefully and efficiently be improved.

5. Both data collection and storing and processing will be facilitated if printed standard forms were used for reporting, with carefully worked out instructions on how data should be collected and reported. Forms and check-lists currently being used for project appraisal and supervision and for the proposed data bank should be a good starting point for devising appropriate forms. These forms should be flexible enough to accommodate any changes that are necessary to allow for the particular features

I don't
like them

hope no
research
on basis
of these
data

?

✓

December 24, 1968

don't think
standardization
necessarily has been
result

of any specific projects. Some adaptation of the standard forms is likely to be necessary in most cases, but they would provide a general framework and ensure a reasonable degree of uniformity in reporting and cut down on the administrative burden, both for the borrower and the Bank. In due course the reporting forms and instructions should be translated at least in Spanish and French.

6. Careful consideration should be given to the question as to what extent the monitoring and research functions can be served by the same project data reports. There is obviously considerable over-lapping but project supervision, for example, may require more frequent reporting of cost data than is necessary for evaluating ex post what happened to the project. Conversely, project re-evaluation will probably have some data requirements that are not necessary for a more limited monitoring purpose. The most effective way to handle this may be to have one standard data reporting form, but with different parts, one geared to monitoring, one to re-appraisal, and one dual-purpose.

I don't believe
this ^{case} can be
done w/o
field visit.
S₁₄
sounds very
elaborate.

7. Storage of project data also requires further consideration. Files should be centrally located and be easily accessible to all interested parties, in particular the Projects Departments and the Sector and Projects Studies Division. As a minimum the project data reports should be kept separate from the operational files and general correspondence. It may also be desirable to provide separate storage for data necessary for re-appraisal. The extent to which, and at what time, information should be transferred to magnetic tape for computerized data processing will also need to be investigated.

II. Staff Responsibility for Project Data Reporting System

8. In general, the Projects Departments will be responsible for the day-to-day administration of the project data reporting system. The Sector and Projects Studies Division, in consultation with the Projects Departments, will initiate setting up the system, consult as requested on statistical and other problems that may arise in data collection, reporting and storage, and review the general adequacy of the reporting system and make recommendations for improvements.

9. Specifically, the Sector and Projects Studies Division will (i) prepare standard lists of data to be reported for each proto-type project; (ii) prepare forms for reporting of such data; (iii) advise on definitions of data and statistically efficient ways of collecting them; and (iv) advise, in consultation with the Statistical Services Division, on the appropriate storage of project data. For these purposes the Division will work closely with the Projects Departments, and undertake missions as required. A small unit of 2 to 4 professionals will be established in the Sector and Projects Studies Division to carry out these functions and provide a focus in the Bank for project data reporting.

When do they
get on with
people?

December 24, 1968

10. The Projects Departments will (i) adjust the data reporting requirements and reporting forms for specific projects as required, in consultation with the Sector and Projects Studies Division; (ii) ensure that reporting requirements are met, with respect to quantity, quality and timing, and send reminders if necessary; project supervision missions will be expected to check on the adequacy and the reliability of the reported data and to straighten out any difficulties that may arise, with the assistance of the Sector and Projects Studies Division as required; (iii) maintain up-to-date project data files. The Projects Departments will not have any special staff assigned to project data reporting. This function will be part of the normal staff responsibility during project preparation and supervision, and sufficient time will have to be allowed for it. Whoever in the Projects Departments is responsible for a particular project will handle reporting requirements, under the supervision of his Division Chief and in consultation with the project data unit in the Sector and Projects Studies Division.

11. Questions arising from the project data reporting system will normally be dealt with through direct contact between the Projects Departments' Divisions and the project data unit in the Sector and Projects Studies Division. Proposals for the initial organization of the reporting system, or for subsequent major changes, and any major difficulties that may arise during implementation in specific cases, will be cleared with the Director of the Projects Department concerned and/or the Associate Director, Projects, and the Chief of the Sector and Projects Studies Division.

12. At least during the period of the initial setting up of the reporting system it would facilitate cooperation between the Sector and Projects Studies Division and the various Projects Departments, if contact men were appointed in the Projects Departments who would see to it that all appropriate people were consulted on the various issues.

III. Work Program for Setting Up the System

13. The system is to be implemented gradually, and presumably with some trial and error. The choice of the type of projects to start work on is largely governed by pragmatic considerations. It is most convenient to start with projects that come up for loan negotiation in the next several months. A further more systematic selection may be based on the quantitative importance of the type of project, whether it has frequent problems of evaluation or implementation, and whether relevant data can be collected relatively easily.

14. The Sector and Projects Studies Division expects to have a key-man available for the proposed project data unit by early Spring 1969. A systematic start could be made then with the classification of projects, the selection of standard lists of data for various types of projects,

Mr. Warren C. Baum

- 4 -

December 24, 1968

the preparation of forms, and the elaboration of administrative arrangements, and filing and storage methods. The unit will, of course, work in close cooperation with the Projects Departments concerned and other staff in the Sector and Projects Studies Division.

15. I expect that 12 months after the start of systematic work on project data reporting the system should be working for the 10-15 most prevalent types of projects. Further adjustments and expansion in coverage will, of course, continue thereafter.

16. Initial staff requirements will be mainly for setting up the system, and working out details of data requirements, reporting forms and storage. At a later stage there will be gradual shift towards monitoring of the system, trouble-shooting and further refinement. On balance, I would expect the project data unit to expand rather than decline after the initial effort. Apart from the key-man referred to above at least one additional man is required for setting-up the system and should be recruited as soon as possible.

HGvanderTak:bsc

cc. Messrs. Kamarck/Stevenson
Reutlinger/de Weille

*This appears much
more elaborate than
I envisaged - and it
concerns me. S/S*

Mr. Herman van der Tak

December 3, 1968

Warren C. Baum Warren C. Baum

Evaluation of Project Benefits

I refer to your memorandum of October 24th ✓ on the above subject, and to the subsequent conversation which we held on it in my office.

I have asked the Directors of the Projects Departments to prepare specific recommendations for implementing the proposals in paragraph 12 (a) and (c) of your memorandum, covering the systematic reporting of cost and benefit data for all projects, and the ex post evaluation of a limited number of projects, respectively. Attached are memos from Messrs. Evans, Knox and Sadove on the subject; a memo from Mr. Ballantine will be forthcoming shortly.

I think you will find that the memos are all responsive to the subject and contain a number of useful suggestions. After you have had an opportunity to review them, I would welcome your specific proposals for a work program in this field.

Attachment

WCBaum:rma

cc: Mr. Chadenet
Mr. Ballantine
Mr. Evans
Mr. Knox
Mr. Sadove

Mr. Warren C. Baum

November 29, 1968

R. Sadove **R. SADOVE**

Follow-up Evaluation of Projects

1. You asked for written comments on the "Discussion Draft" of a paper entitled "Follow-up Evaluation of Projects" prepared in the Economics Department. In general we think the memo puts forward many valuable points for what should be constructive discussion. Our attention was specifically directed to paragraphs 12 (a) and (c) where specific research-oriented follow-up procedures are suggested.


2. In respect of the procedure outlined in paragraph 12 (a) and spelled out in more detail in paragraphs 15 - 19 - "the systematic reporting and evaluating of actual against predicted benefits and costs for all projects (simple indicators)", we have the following points to make:

a) Actual cost data is relatively easy to get and indeed in most cases we monitor this closely now.

b) The broader types of benefit data, such as for road projects designed to promote agricultural development, will in most cases be difficult to get. One of the reasons for this is that we appraise projects on a "with and without" basis not "before and after" - and in many cases we can't monitor what would have happened if we didn't make the project. This will also be a problem where avoidance of congestion or other future costs is the rationale of the project. But it should be possible to draw some inferences from what has happened "before" and "after".

c) The progress of a project, can probably be monitored by certain key indicators. These could be the variables to which the particular investment decision was most sensitive, or general factors which adequately reflect the "general health" of the project, just as the temperature, pulse rate, blood count etc., are in most cases enough to separate the healthy and sick during an annual physical.

d) One should not believe that the "sickness" can be diagnosed or that lessons for the future can be drawn from these simple indicators. The sick project would then have to be looked at much more carefully - even to determine that they are truly in trouble. Even some which look healthy may be sick if the indicators are badly chosen. We must recognize this and accept it.



e) Appraisal reports could include a paragraph recommending feasible indicators (6 or 7) which could be used to monitor the project. The sensitivity of the outcome of the project to the performance of these indicators should be specified, and the "safe range" indicated. Offsetting and aggravating trends amongst variables should be specified.

f) The recommendation that appraisal reports should fully spell out all assumptions and predictions worries us because of the lengthening of the reports and the associated additional burden in terms of increased time spent upon presentation. Some sort of working paper approach or other stylized format for this should be devised.

3. Following is a list of indicators which might prove useful in monitoring the performance of various types of transportation projects:

a) Road Projects:

1. costs of construction and right-of-way (economic and financial)
(may be broken down into significant components)
2. routine periodic maintenance expenditures
3. subsequent major strengthening, repaving costs
4. vehicle operating costs
5. transport charges (prices)
6. vehicle traffic growth and composition
7. trip times (various types of vehicle)
8. important indicators peculiar to project such as accidents, numbers of trucking and bus licenses issued, population movements etc.
9. For road projects which depend for their justification primarily on agricultural or other generated economic activity special indicators, data on which can be reasonably collected, will have to be set up for each operation. This may involve arrangements such as to have separate records kept at specific markets, to have special road interviews during particular seasons, and/or regular reporting of market prices for specific commodities.

b) Port Projects:

1. costs of construction (economic and financial)
2. cargo traffic handled (seasonal peaks if necessary) (tonnage/composition)
3. productivity indexes (detailed by commodity and by mode of handling if important)
4. number and types of ships served (other characteristics if necessary)
5. ship waiting time and service time
6. cargo handling cost/ton (specific commodities and analysis if necessary)
7. ocean shipping rates for key commodities
8. changes in port rates and tariff structure
9. important indicators peculiar to project such as dredging volumes, maintenance costs, damage or pilferage indicators, warehousing costs, offtake by road or rail etc.

c) Railway Projects:

1. costs of major items construction, equipment (economic and financial)
2. traffic growth and composition (seasonal peaks and specific sections if necessary)
3. operating costs and performance indicators of major items in project i.e. diesel engines, boxcars etc.
4. railway financial indicators sufficient to reflect pricing and commercial policies (return on net fixed assets, operating ratio, current ratio etc.)
5. changes in railway rates and tariff structure
6. indicators reflecting key variables for specific project

November 29, 1968

4. The costs and prices mentioned in the paragraphs above have to be adjusted by wage increases, general inflation rates, and increases in taxes or licenses. This information would be required as well.

5. A rigid approach to the indicators appropriate for a project type would be a mistake. We should be able to exercise judgment as to what to watch just as we exercise judgment in what is important in particular appraisals. Appropriate sensitivity analyses should be used as necessary. If we use a data bank approach, highly individual indicators for each project would be simple to set up. Reporting of the really important indicators with obvious relationship to the project could responsibly and reasonably be requested of the Borrower.

6. In respect of paragraph 12(c) of the "Discussion Draft", our consideration of projects for possible selection for follow-up indicates that data of the above sort are available in varying degrees in the Bank for all of the projects but that it would be necessary to supplement the information in order to establish the complete ground for a study.

7. In the following list we have indicated the projects for which we think that the supplementary data could be very quickly and easily obtained from the agencies concerned. In most of these cases the supplementary data needed would be relatively small.

Roads - Japan

Kenya

Mexico

Thailand

Venezuela

Ports - East African Railways and Harbours

Railways- East African Railways and Harbours

Japan (Tokaido Line)

New Zealand

8. If for any reason the follow-up projects should be in some area other than that of the countries/projects listed above, we could assign someone to review the material on file for the specific project designated.

EVKJaycox/amd

cc: Messrs. Hogg, Mackay, Carmichael, Engelmann, Hardy/Young/North

Mr. Warren C. Baum

November 27, 1968

L. J. C. Evans

Follow-up Evaluation of Projects

1. You have asked for this Department's views on the follow-up evaluation of projects, in the light of the discussion draft attached to Mr. van der Tak's memorandum to you of October 24. In particular you have requested us to set forth our proposals for improving reporting requirements for this purpose and to make suggestions as to projects which at this time warrant in-depth review to determine their progress in relation to that anticipated at the time of appraisal.

Present Position

2. It is certainly true that the principal and immediate objective of our supervision missions and progress reporting requirements is concerned with physical development of the project. However, information is usually also sought on the benefits arising from the project, as will be seen from the attached selection of draft outlines for progress reports on certain projects. (In the case of irrigation projects, of course, where benefits may not start to arise until completion of physical construction, the early reporting requirements do not stress crop production aspects). For projects where centralized marketing arrangements are in force, for example, smallholder projects for the production of export crops that need processing (oil palm, rubber, tea, etc.) and all plantation projects. Such production data can be easily obtained and is usually reliable. Data collection is much more difficult and much less reliable in other types of projects, particularly credit and livestock projects and irrigation projects where the principal crops are food for subsistence and local marketing.

3. Attempts at improved data collection are being made in some important cases. In the Philippines Agricultural Credit Project the Rural Banks Department of the Central Bank is conducting a survey covering 319 individual farms under the project (out of approximately 2,500 borrowers), gathering information on farm assets, production and returns. In the Pakistan Agricultural Credit Projects, the Agricultural Development Bank has set up a unit with two economists gathering information on costs, prices and production in order to measure the impact of the credits on the economy. Since 1965, it has become the practice in livestock projects to include in the loan documents a requirement that sample information be collected that would permit an evaluation to be made of the impact of the lending program on the development of the economy, e.g. in Ecuador, Bolivia, Uganda, Chile and Uruguay; and this project activity has been set up in Mexico, Paraguay and Argentina in the course of project supervision. In the Chile Livestock Project a sample of some 80 borrowers (out of a total of about 140 in 1967) has been carried out and the results

summarized in the Annual Progress Report. In Paraguay data has been collected which was used in the appraisal of a second credit, but the validity of the data is open to question. In Uruguay considerable data has been collected by an economist in the Central Bank, but its validity needs to be checked and the economist is doubtful how to evaluate it, partly because of the exceedingly large inflation in recent years.

4. No systematic attempt has ever been made in the Agriculture Projects Department, to my knowledge, to reconstruct data obtained from progress reports, compare it with appraisal estimates, and recalculate the rate of return of a project to the economy. A somewhat similar sort of exercise is of course carried out when we appraise a follow-up project, in that the costs and benefits achieved in practice in the first project have a substantial influence on the costs and benefits assumed in the second. For example, the appraisal report on the first Kenya Smallholder Tea Project assumed certain costs and benefits which gave a theoretical return of 24%-28%; the appraisal report on the second Kenya Smallholder Tea Project estimates the return at 16%-25%. (But these returns were not calculated on a directly comparable basis). It is of interest to note that the Kenya Tea Development Authority on its own initiative, asked our ADS in Nairobi to assist in more concentrated data collection at the individual smallholder level. After only a small area had been covered this exercise was abandoned as being too expensive.

Possibilities for Improvement in Data Collection for Agricultural Projects

5. I would not expect too much difficulty in improving where necessary the data obtained from those smallholder and plantation type projects with centralized marketing mentioned in para 2 above, which data could readily be checked in the field by the regular supervision missions of this Department. Present pressures of work on staff, however, would prevent them from actually carrying out a detailed evaluation of such data and it would be helpful if Economics Department could carry this load. As an initial step I would suggest that an ongoing smallholder tea project (Uganda), a new smallholder oil palm project (Papua and New Guinea), an ongoing plantation project (Cameroon) and an ongoing fisheries project (Taiwan) be looked at (in Washington) by Mr. van der Tak's staff, in consultation with my own staff, to see what changes would be needed in present reporting requirements to meet these evaluation needs.

6. For other types of project which do not involve centralized marketing, however, quite a lot of work may need to be done to improve data collection on benefits and on-farm costs, most probably involving sampling techniques. In the majority of our projects of this type it would probably be necessary for the Borrower to have staff specifically allocated to this task, and they would have to have some special training if the data were to be reliable. With some of our more sophisticated Borrowers, provision of this staff might not be difficult; with others it would be a problem, since many project authorities are already fully occupied with project implementation. In the latter cases it might be worth investigating the possibilities of using local university researchers to carry out such

data collection (and interpretation) on a long-term basis. For these reasons, I would not recommend that the collection of data of this kind be made a condition of all our loans; but the prospects for such data collection might well be investigated by appraisal missions who could be asked to make appropriate recommendations.

7. As an initial step, I would suggest that Mr. van der Tak's staff take a close look, in the field, at some of these data collection problems for these types of projects. Suitable cases where an attempt is already being made are either the Philippines or the Pakistan Agricultural Credit Projects, and either the Chile, the Paraguay or the Uruguay Livestock Projects (see para 2 above). For irrigation, one of the Indian projects would probably be the most worthwhile. For contrast, the Tanzania Agricultural Credit Project and the Malawi Lilongwe Project might also be looked at.

8. Once a methodology had been derived, suitable changes could be introduced into reporting requirements for selected projects. This Department's regular supervision missions could keep a check on the collection of this data, but again, we would have to call on Economics Department to evaluate it. We should not overburden our borrowers nor lose sight of the fact that we try to tailor our requirements to fit their needs as much as our own. (It is unfortunate that the bases of collection are frequently not coincidental, e.g. a "project area" may not be identical with the administrative boundaries on the basis of which gathering of statistics is presently being carried out.)

In-depth Evaluation

9. The collection of statistical data and its desk evaluation would be of obvious value for general information purposes. It would enable us to show the economic impact of our projects, to keep a check on the accuracy of our projections and to give us comparative data for new projects. To extract its full value, however, the projects concerned should be evaluated in depth, to show the reasons for any major changes over original estimates. This implies that the evaluation team must have a thorough knowledge of the history of the project and of the environment - political, physical and economic - within which it has been implemented; preferably, therefore, such an evaluation team would consist of one member of this Department who has been intimately connected with the project, with other members, as necessary from outside, either from the Economics Department or consultants.

10. To be of most use, a project selected for in-depth evaluation should have been in operation for some time, should be in a country where there is expected to be a continuing agricultural lending program and should be of a type which is likely to be repeated either in that country or elsewhere. Eventually projects to be evaluated should be selected from among those for which improved data is being collected. Initially, however, an attempt must be made to carry out such an in-depth evaluation without this advantage. Agricultural projects recommended for early in-depth evaluation are as follows:

- Philippine Agricultural Credit
- Pakistan Agricultural Credit
- Uruguay Livestock
- Republic of China Tubewell
- Mexico, 1st and 2nd Irrigation
- Peru, San Lorenzo Irrigation and Settlement
- India, Shetrunji Irrigation
- Kenya Land Settlement

Initial Data

11. Mr. van der Tak makes the comment in his discussion draft (paras 6 and 16) that the information given in the appraisal report is often insufficient basis from which to base a comparative evaluation of project performance. This does not necessarily nor usually reflect an absence of relevant data, but rather a shortage of space within the appraisal report to put down all the details. Generally speaking, staff members appraising projects have working papers which should be adequate for any comparative study. This then raises the question as to whether it should in future become standard practice for working papers to be formalized into some sort of report (or, at the very least, be more systematically filed) for internal use. I believe this would be advantageous for all aspects of project supervision, not only in-depth evaluation, but it would inevitably absorb more staff time.

Enclosures

cc: Messrs. Wapenhans (o.r.), Bartsch/Darnell, Goffin, Rowe, Stoops

SDEccles:at

Mr. Warren C. Baum

November 27, 1968

A. David Knox *ADK*

Evaluation of Project Benefits

Further to my memorandum of November 22[✓] on the above, I attach a memorandum prepared by Mr. Russell. You will see that he has now had an opportunity to examine in more detail the information available in our files about the power projects listed in my earlier memorandum. It now seems that we can reduce the list of power projects suitable for evaluation to three, namely:

221-ES
263-ES
175-TH.

Attachment

ADKnox/mv

Mr. A. David Knox

November 26, 1968

T.B. Russell

Evaluation of Completed Power Projects

1. Following my memo of November 18, 1968 to Mr. White, you asked me to examine the appraisal reports and the original feasibility studies relating to the projects listed and report on:

- (a) the basis of the forecasts made in them;
- (b) the justification given, if any, for the choice of the project as the least cost method of meeting the forecast load growth.

2. In most cases I found that the original feasibility studies preceding the Bank's appraisals were not available as they had been destroyed. I have had to rely mainly, therefore, on the information given in the Bank's appraisal reports, although these sometimes describe the findings of the feasibility studies on the two items in question.

3. I have set out my findings in the attachment, the first paragraph under each project dealing with point (a) above and the second with point (b). The results may be summarized as follows:

- (i) in only 6 out of the 15 projects listed are the methods or reasoning behind the forecasts adopted explained in any detail. These are the 3 El Salvador projects, 2 out of the 4 Nicaragua (470-NI and 543-NI) and the Thailand project (175-TH). Of these the 2 Nicaraguan projects are too recent (1966 and 1968) for evaluation of outturn compared with forecast;
- (ii) in the other cases considered, the forecasts appear to have been based, explicitly or implicitly, either on a continuation of past trends or on a deliberately conservative estimate of future prospects to avoid possible over-optimism in calculating future returns;
- (iii) alternatives to the proposed project appear to have been considered in 9 out of the 15 cases but in only 5 of these do the appraisal reports or feasibility studies give any degree of detail on the assumptions made for the comparisons (e.g. on capital and fuel costs). These are the first 2 El Salvador projects (221-ES and 263-ES), 1 each of the Nicaragua and Philippines projects (543-NI and 297-PH) and the Thailand project;
- (iv) this suggests that the projects most suitable for evaluation in the light of (1) and (3) above would be 221-ES, 263-ES and 175-TH. Even for these, however, no final evaluation would be possible at the present stage since insufficient time has elapsed. The forecasts of load growth and sales

cover periods beyond the current year, so that only the trend to date could be judged. On the cost side the final out-turn will not be known until the end of the projects' lives so that, again, the most one could do is compare the realized costs to date of the project with the estimates and the assumptions on which the costs of the alternatives were based with actual trends so far (e.g. in fuel costs, where the alternative was a thermal plant).

4. I have the following further general comments:

- (i) if evaluation of completed projects is to become a regular procedure, it is obviously desirable that as much of the original documentation as possible should be available for this purpose. This is not the case at present since, as mentioned above, most of the feasibility studies relating to the projects considered have been destroyed. Obviously it would be impracticable to retain all the relevant material relating to all projects so that the answer would seem to be to arrange specifically for the retention of such material for selected projects with a view to their subsequent evaluation;
- (ii) in only two of the projects examined is there any indication that more than one forecasting method was used for the purpose of load projections. In only one of these cases (221-ES) were the methods used described viz. analogy (i.e. comparison with a neighboring country, in this case Costa Rica); aggregation of separate area estimates; and extrapolation of the average rate of growth over the previous 10 years. In Britain three separate forecasts using different approaches are made each year as a matter of course and the same is true of other countries. The appropriate degree of sophistication in the methods to be used will vary from country to country but, wherever possible, projections based on at least two different methods should be made since they act as a check on each other.

TBRussell:mb

cc: Mr. White

Division File
Operational Files

I. EL SALVADOR

Loan 221-ES (1959) Expansion of the Guayabo Hydroelectric Project

1. The original feasibility study has been destroyed. The Bank's appraisal report adopted the borrower's load forecast of 12% p.a., said to have been arrived at after making three separate forecasts on different bases as follows:

- (i) comparative utilization of electricity - for the forecasts it was assumed that per capita consumption in 10 years' time would be half the figure in neighboring Costa Rica. This gave a growth rate of 11.4% p.a.
- (ii) specific load estimates, based on the forecasts of the individual distribution agencies. This resulted in a forecast growth of 12.9% p.a.
- (iii) extrapolation of previous 10 year trend. This gave a figure of 14.7% p.a.

2. In the Bank's appraisal report the project was compared with the alternative of an equivalent thermal plant (15 MW). Assuming 5% interest, a thermal station life of 30 years and fuel (imported) at \$3/barrel (excluding duty), the annual return on the extra capital required for the hydro project was estimated at about 25%. The basis of the fuel price assumed was not stated.

Loan 263-ES (1960) Guajoyo Hydroelectric Project

1. The feasibility study by the borrower's consultants is available and gives a forecast growth rate of 12% p.a. to 1972 for peak demand and energy sales. The basis is not explained but the figure is said to be adopted from an earlier report, no copy of which is available. The Bank's appraisal report, noting that sales were being maintained approximately at the level forecast at the time of the previous loan (221-ES), also adhered to the figure of 12% p.a. for future growth.

2. The consultant's feasibility report compared the Guajoyo project with various alternatives, including a thermal plant, and concluded that it would be the most economical source of additional power. The Bank's report compared the project with a thermal station of equivalent capacity, assuming interest at 5% and a thermal station life of 30 years. With fuel at \$3.42/barrel (excluding duty), which was said to be the established price in El Salvador, the annual return on the extra investment required by the hydro scheme was 22.4%; if fuel were available at \$2.50/barrel, the return would still be 17%, which was regarded as adequate to justify the investment.

Loan 342-ES (1963) Power Expansion Program

1. The consultants' feasibility study has been destroyed. The Bank's appraisal report noted that peak demand had risen on average 16.4% p.a.

over the period 1954-62, but that the rate had fallen to 12% p.a. in the last 3 years of this period. The report used the latter figure for its projections to 1973, which was said to be in line with the expectations of the borrower and their consultants.

2. The Bank's appraisal report referred to extensive studies of various alternative programs which had led to the selection of the proposed program (for a further hydro plant at Guayabo plus a 25 MW thermal station). Details were not given but the report said that the utility's consultants had verified that, on a present worth calculation, the cost of the proposed program would be less than the cost of any alternative.

II. NICARAGUA

Loan 121-NI, 122-NI and 154-NI (1955-1956) Thermal Power Project

1. The feasibility report by the borrower's consultants covering the first two of these loans forecast that the load would grow at 15% p.a. to 1964, though without spelling out the reasons for this forecast. The Bank's appraisal report noted that this had been the average rate since 1946 and assumed it would continue to 1963, perhaps falling to a somewhat lower rate after 1963. The same rate was adopted in the Bank's report on 154-NI, for which no feasibility study is available.

2. The Bank's appraisal report on 121-NI and 122-NI (for a 30 MW thermal station plus associated transmission and distribution) stated that, although studies made so far indicate that hydro power sufficient to supply the more densely populated areas of the country could be developed, the relative costs of hydro and thermal power could not be determined until preliminary engineering work on a selected hydro project had been completed. (Note: loan 154-NI was a supplemental agreement to 121-NI and 122-NI).

Loan 259-NI (1960) Rio Tuma Hydroelectric Scheme

1. The consultants' feasibility study, which appears to have included a survey of the power market, has been destroyed. The Bank's appraisal report quoted the actual average growth rate of total sales of over 16% p.a. in 1946-59, made up of a 19% annual rate for residential and commercial demand and 12.5% p.a. for industrial demand. For the period 1959-69 it adopted a projection of 10% p.a. for the residential and commercial load. The basis of this was not given but it was said to be more realistic than the 15% growth rate forecast by consultants. Allowing for further new industrial loads, this resulted in a projected growth of peak demand from 22,600 kw in 1960 to 50,000 kw in 1969. This was said to allow for an expected improvement in system load factor and a reduction in losses.

2. In the Bank's appraisal report the 50 MW hydro project was compared with the thermal alternative necessary to meet the same peak load and energy

demand, which was taken to be a 30 MW steam plant. At 8% interest this showed that the present value of cash outlays would be roughly the same for either alternative up to 1971, when further expansion of the system would be required. The capital cost of the thermal station assumed for this purpose was stated (\$213/kw), but not the cost of fuel. Beyond 1971 the report stated that further expansion could be met more economically with hydro. The hydro project was also favored on balance of payments ground, since all the fuel for the thermal alternative would have to be imported. The hydro scheme was therefore considered preferable.

Loan 470-NI (1966) 15 MW Gas Turbine and Associated Facilities

1. The consultants' feasibility study of this project has been destroyed but, according to the Bank's appraisal report, it included a 10 year market projection for the interconnected system of which the project was to form part. This was based on an examination of past consumption trends in each of the 3 geographical regions of the system according to category of consumer, population growth, industrial developments and "other factors" (unspecified). Forecasts were then prepared in the light of these trends by 2 separate methods (no details given), the consultants adopting the lower projection of demand and energy requirements to evaluate the need for additional generating capacity. These forecasts were adopted for the purpose of the financial projections in the appraisal report, after adjustment for developments subsequent to the consultants' study. They showed gross power and energy requirements rising by 16% in 1966, 13% in 1967 and an average of 11% p.a. in the following 7 years. This compared with a growth rate of 25% p.a. in 1958-65.

2. According to the Bank's appraisal report, the utility and its consultants had evaluated both hydro and thermal power sources as possible alternatives for meeting the peaking power problem. Details of the comparative costs of the alternatives and the assumptions on which they were based are not given in the report but apparently the hydro alternative was far too costly and would have also placed undesirable limitations on the scope of a longer term study of hydro potential. A steam station would have been cheaper than hydro but did not fit in with the expected long range development of the system. The Bank therefore accepted the gas turbine proposal.

Loan 543-NI (1968) Thermal/hydro Expansion Program

1. The consultants' feasibility report referred to 3 independent projections of the future growth of power generated - their own of 13% p.a. to 1975, one by the utility of 15% p.a. to 1972 and a third by other consultants which forecast 20% annual growth to 1972. The methods used for these forecasts were not described. The Bank's appraisal report also referred to these different forecasts but adopted none of them in full. It took the utility's own forecast to represent the upper limit and used it for scheduling future generating capacity additions. For the purpose of forecasting future sales and revenue, however, the Bank's report based itself broadly on the lower projections of the consultants, though with some modifications. Specifically,

it forecast a 20% increase in units generated and sales in 1968 (compared with an average of 23% p.a. in 1958-67), falling to 13% in 1969 and subsequently to about 8% by 1974. For this expected slowing-down in the rate of growth two reasons were given viz.

- (a) no new major industrial loads;
- (b) further expansion of distribution would be made only as necessary to provide proper service to the existing area.

2. The consultants' feasibility study compared the costs of the proposed mixed thermal/hydro project with an all-thermal scheme at various rates of interest from 6% to 16% and at 3 different fuel prices (the current, the minimum international price considered obtainable at the time and a very low notional price). The consultants concluded that at the highest fuel price assumed the hydro scheme was more economical at interest rates up to more than 16%, at the medium fuel price up to 14.8% and at the minimum fuel price up to 10.5%. The Bank's appraisal report considered that this analysis did not fully substantiate the case for the proposed scheme and evaluated two new cost streams comparing an all thermal development with the development of the hydro project followed by thermal power. At the current fuel cost the break even point was at 10% interest, compared with 6% assumed at a 15% lower fuel price. The latter was considered an extreme assumption and this, coupled with the fact that the hydro cost estimate was meant to be conservative and that the return on the additional capital was unlikely to be below 8%, led to the conclusion that the scheme was acceptable.

III. URUGUAY

All the feasibility studies relating to the three projects below have been destroyed.

Loan 30-UR (1950) Thermal Power Expansion Program

1. The Bank's appraisal report refers to studies by the utility concerned (UTE) to estimate the probable future growth of demand on its system. These showed that average growth rates in the period 1914-46 were 8.06% in Montevideo, 11.84% in the interior and 8.43% on the system as a whole. For the period 1948-58 7% annual growth was forecast for Montevideo and 12% in the interior, except in 1949 and 1950 when rates of 15% and 20% respectively were forecast as pent up demand was met. The Bank regarded the 1949 and 1950 estimates as optimistic, adopting much lower figures for the growth of demand in those years, but its long term estimate of 7.7% p.a. for the interconnected system was close to the utility's. The different assumptions for the first two years, however, resulted in very different load estimates in the later years of the period. The Bank's sales forecasts were derived by applying "reasonable" load factors to obtain gross generation and then subtracting estimated system losses.

2. It is not clear from the Bank's appraisal report whether the scheme as adopted had been compared with possible alternative programs to establish that it was the least cost solution from the system point of view. It was stated, however, that:

- (a) the need was urgent;

- (b) the construction of the main item in the scheme (a 50 MW steam unit) in Montevideo would meet the needs more quickly and cheaply than anywhere else, and
- (c) it would allow time for the studies and designs necessary before additional hydro capacity could be added.

Loan 132-UR (1955) Thermal Power Project

1. The utility had projected growth rates of 8.6% p.a. in load and 9% p.a. in sales from 1955 to 1961/62, compared with actual rates of 9.1% and 9.6% in 1947/54. These were adopted in the Bank's appraisal report, although the assumptions on which they were based were not stated.
2. From the appraisal report it would not appear that any alternatives to the proposed project were considered. An earlier Bank report (T.O. Report 40 of November 1953) on the proposed program for the expansion of Uruguay's power system likewise did not consider whether the program was the least cost means of meeting the growth of demand but merely commented that the proposed program was technically sound and that the additional facilities were needed to meet the estimated growth in demand.

Loan 152-UR (1956) Baygorria Hydroelectric Project

1. The Bank's appraisal report adopted the same sales forecast as for 132-UR. The forecast growth of peak demand, however, was given as 8% p.a., compared with 8.6% in the previous report, but no explanation was given.
2. The appraisal report does not give any comparisons with possible alternatives but some must have been made (perhaps in the missing feasibility study) since it states that the economic justification is based "not only on the lower cost of production compared with steam generation but also on potential savings in imports of fuel oil which weigh heavily on the balance of payments".

IV. PHILIPPINES

The consultants' feasibility studies of these projects have also been destroyed.

Loan 183-PH Binga Hydro Project (1957)

1. The Bank's appraisal report did not accept the utility's forecast of the growth of the Manila part of the system. This was that the 1949-56 rates of growth (12.9% p.a. for peak load, 11.8% for energy sales) would continue as far ahead as could be foreseen. The Bank's report forecast that the growth rate of energy requirements would fall gradually from the 1949/56 average of 11.8% to 8% in 1966/67, assuming system load factor remained at 50%. The reason given was that the economic position of the country would require a tight money policy, leading to a slow-down in industrial development, which would in turn affect the rate of growth of non-industrial consumption. For the provincial part of the system, however, the Bank report accepted that load growth would continue at least at the 1948/55 rates (11% p.a. for non-simultaneous maximum demand, 12% for energy requirements) for the next 10 years, since electricity supply in the provinces was in its infancy.

2. In the Bank's report the "least cost" justification of the project was based on comparison with a thermal station of the same size (100 MW). The capital cost assumed for the thermal station was \$220/kw but the basis for this was not stated and details of the other assumptions used, including the cost of fuel, were not given. The estimated return of 8.9% on the extra investment for the hydro scheme was accepted as adequate.

Loan 297-PH (1961) Angat Hydroelectric Project

1. The Bank's appraisal report accepted the utility's forecasts of the growth of peak demand, gross energy requirements and sales for the period 1960/61 to 1971/72. These differed for the different parts of the system, and their basis was not stated, but they resulted in a composite average growth rate of sales for the system as a whole of about 16-1/2% p.a., which the report thought could very well prove conservative.

2. The Bank's report compared the proposed project (206 MW) with the alternative of a 2 x 75 MW thermal station, which was regarded as most nearly equivalent for meeting the system load requirements while still providing adequate system reserve capability. The thermal capital cost assumed was \$185/kw, which was said to be that used in the utility's plant expansion program for future thermal additions. The fuel cost assumed was equivalent to US\$47¢/million Btu, which was said to be to the benefit of the thermal alternative. At 5% interest and a 30 year life for the thermal alternative, the estimated return on the additional hydro investment was 12.3%.

V. THAILAND

Loan 175-TH (1957) First Yanhee Multiple Purpose Project

1. In estimating the future growth of the load, the Bank's appraisal report distinguished between two periods. The first was 1957-62, the estimated construction period for the project, during which it was assumed that most of the existing restrictions on supply would remain, with little improvement in service or voltage, and that the expansion of generating facilities would be held to a minimum. The second period, from 1963 to 1975, would extend from the completion of the project until all its capacity had been absorbed. During this period it was assumed that load growth would be governed by economic factors, in particular the rate of investment in power expansion which the economy could sustain: these assumptions led to a forecast growth of peak demand from the 1956 level of 54 MW in 1956 to 147.5 MW by the end of 1962, an average annual rate of increase of 18.3%. For the period 1963-75 rough estimates indicated that the economy could support the investment required to meet growth rates of 8% p.a. in Bangkok and 5% p.a. in the provinces. These rates were therefore adopted for forecasting the growth of the load in the second period. They were said to be slightly higher than those in the U.S. Bureau of Reclamation's assessment and only half as high as those used in a report by independent consultants. In addition, it was assumed that industrial loads not connected to the system would be gradually absorbed in this period. This led to a forecast peak load in 1975 of 161.7 MW, representing an average annual rate of increase of 9.2% after 1962. In the same period sales by the Yanhee Authority were forecast to increase at an average of about 10-1/2% p.a.

2. The proposed project was compared with the alternatives of a thermal plant using:

- (a) indigenous lignite or
- (b) imported oil.

The first was dismissed as impractical, since it would require the construction of an expensive dam and cooling towers near the lignite mine to overcome the lack of cooling water. For the second alternative (taken to be a 120 MW steam station plus a 19.2 MW diesel unit) a capital cost of \$225/kw was assumed, and a fuel cost for the steam plant of 60 cents/million Btu (with a heat rating of 10,500 Btu/kwh) and for the diesel plant of 15 mills/kwh. At 5% interest, 25 year life for the steam plant and 16 years for the diesel, this showed a return of 11% on the extra hydro investment but it was stated that this would increase sharply as net units were added at Yanhee.

Mr. A. M. Kamarek

November 25, 1968

H. G. van der Tak

Sector Studies and Project Evaluation

1. The recent acceleration in the Bank's project activities has strengthened my long-held belief that the present emphasis in the sector and project work of the Bank Group is misplaced and should be reconsidered. Lending for projects is, of course, our principal business and a large part of our activity should be directed at the preparation and evaluation of projects for lending operations. The reorganization of the Projects Departments appears to be designed and appropriate to speed up the preparation of projects and increase the number of projects ready to be financed.

2. The present setup has left an even larger void than existed already between the country-oriented work of the Area Departments and the project-oriented work in the Projects Departments. The economic work of the Area Departments is largely concerned with macro-economic questions relating to the "creditworthiness" and "performance" of the country, as reflected, in particular, in fiscal and budgetary developments and policies, balance of payments prospects and overall development plans. Analysis of problems, policies and priorities in the various sectors such as agriculture, transport, etc. tends to receive only secondary attention. On the other hand, the understandable project orientation of the Projects Departments tends to give priority to consideration of particular projects to the detriment of general sector policy aspects and broader questions of investment priorities and resource utilization in the sector. Some important work on sectors is, of course, being done in various parts of the Bank, but there is not a group of people whose primary function is to give the whole range of sector problems the attention they deserve and which they are seldom getting from the Area or Projects Departments.

Implications of Relative Neglect of Sector Problems

3. This emphasis on project work tends to have untoward consequences both for the quality of resource use and resource allocation decisions in the sectors and for future Bank lending operations. First, the more important choice at the early stages of the project selection process are not sufficiently considered. Second, attention focuses on project details rather than broader systems effects. Third, current sector policy problems and utilization of existing resources are neglected in favor of new investments. Fourth, insufficient resources are devoted to the search for new projects. These tendencies are briefly discussed below.

4. A large amount of time and effort is now devoted to project preparation and evaluation with a view to lending by the Bank. Usually the range of options still open for consideration at this late stage in the process from project generation to project implementation is rather limited. Many, if not most, of the crucial decisions are in fact taken at a much earlier stage when it is decided which possible lines of action will be pursued in more detail and backed up by feasibility studies. It is at this early stage that many of the crucial decisions which determine the general framework of later more detailed investment decisions are taken. The later project evaluation process can only be concerned with decisions of lesser import. The broad decisions taken at an early stage, several years before the detailed project evaluation takes place, are likely to have a much greater impact on the efficiency and pattern of resource use in the various sectors than the smaller possibilities for adjustments that remain open later. The scope for error is very much larger in the early stages when major alternatives are rejected for further follow-up through feasibility studies, etc. However, the relative importance of the successive decisions in the evaluation process is not reflected in the measure of attention they get in the Bank, which is mainly preoccupied by the later-stage project evaluation.

5. Closely linked to this bias in our sector appraisal work is a tendency for the late-stage analysis to have a narrow project focus. The concern with project details leads to a relative neglect of the broader systems effects. Concentration on the broad choices open for the development of a river basin or a transport system, for example, is more conducive to consideration of the inter-dependencies between various parts of the system, and is in fact more relevant at that stage, than when attention has narrowed down to particular investments for an irrigation scheme or road improvement. Again, the result of excessive concentration on the narrower project problems that arise in the final stage of the evaluation process is a relative neglect of the wider and more important problems of resource allocation in the sector.

6. The prevailing emphasis on project matters also leads to insufficient attention being paid to current policy problems in the various sectors and to possibilities for making better use of existing facilities. Consequently, there is a fair chance that new investments are misdirected or excessive. It is important that much more is done to see to it that existing resources are used to best advantage, through better policies, such as transport coordination, public utility pricing, tax and subsidy structures, or credit facilities, and other measures to improve efficiency of operations. In the Bank's present setup these considerations tend to get short shrift.

7. The great, and since recently apparently even greater, emphasis on project preparation and evaluation may, of course, be expected to result in a faster flow of projects ready for lending out of the pipeline. But no commensurate effort is made to ensure that there will be a sufficient flow of new potential projects for lending into the pipeline. Clearly, if the flow through the pipeline is to be permanently increased, or even maintained at the present level, something should be done about the inflow of new projects. Otherwise, the current efforts to achieve a greater volume of projects ready for lending will only result in a drying up of the pipeline after a short-lived "gush". An excessive emphasis on project evaluation certainly does not help to maintain a steady flow, not to speak of a steadily increasing flow, of projects which the Bank can finance.

8. The upshot of these comments is that the Bank needs to be more concerned with and be much more active in making sector studies of various kinds. This would help to make the work of both Area and Projects Departments more effective. At present not much, and certainly not enough, is being done by the Projects Departments because of their preoccupation with project evaluation, nor by the Area Departments because of their macro-economic preoccupation with creditworthiness, performance, and all that. Something has been done, and is being done, of course, but not nearly enough, with the results outlined above. The recent reorganization, inspired by the need to speed up the process of project evaluation, will, if anything, tend to make matters worse.

Types of Sector Studies

9. Sector studies come in many shapes and sizes. They may be simple "look-see" operations by one man for a few weeks, or a multi-million dollar effort by a large multi-disciplinary team for a few years. They may make a broad review of the problems of the sector or focus on selected aspects. They may concentrate on a review of policies or on determining broad investment priorities. It may be useful to review various types of sector studies, their uses and purposes, and their relation to work already being done.

10. A major distinction may be made between, first, the low-intensity, small-scale studies usually undertaken by Bank staff or individual consultants and, second, the high-intensity, large-scale studies which are generally made by consulting firms. The ordinary prototype of the low-intensity sector study is the sector review often made in the framework of our country missions. These are usually the result of one or a few staff members (or consultants) looking around the country for a few weeks, talking to officials and interested parties. They tend to be mainly descriptive, without much analysis, but usually give some indication of

the major problem areas and some discussion of policy issues. They are useful as a first reconnaissance of what needs to be studied in the sector in greater depth. Recurrent reviews of this type are not very helpful as they do not contribute to a better understanding of the problems of that sector, but tend to be repetitive. The intensity of these studies varies a bit with the staff resources and time allotted to them, but is usually low. Furthermore, and worse, there is little continuity or follow-up in those studies (a general problem with economic work in the Bank).

11. There are several variants on this basic pattern of "look-see" type sector review. Plan review or program review missions try to make some judgment on the appropriateness of the level and composition of investment and expenditure programs drawn up by the government for the various sectors. Project identification missions look around the country and, on the basis of experience and common sense, try to pick out promising investment possibilities. Occasionally, also, missions have tried to determine the general directions in which further development of the sector should take place and to draw up a tentative broad outline of a development plan for the sector concerned. All these missions try to meet their respective purposes within very strict limits of staff resources and time. The results may be sound judgments, but these are unlikely to have had the benefit either of an extensive data base or an intensive analysis of the issues involved.

12. High-intensity, large-scale sector studies are usually carried out by consulting firms, financed by the Bank or UNDP. They are especially common in the transportation field, with the Bank often acting as executing agency for UNDP studies. To a lesser extent the studies are also common in the power field. Studies of equal scope and intensity appear to be much less frequent in the agriculture and education sectors, although some efforts in this direction are being made under the auspices of FAO and UNESCO. Some of these studies are concerned with the structure and level of pricing (or rates) of various public utilities, problems of agricultural taxation and credit, industrial protection, etc. They might either try to consider the whole spectrum of policy questions arising in a certain sector or focus more narrowly on certain crucial issues. More often, however, these large-scale studies aim at working out an investment plan for a large sector or subsector such as the road sector, development of a river basin, general education plan, etc. These studies are to provide guidance on broad investment priorities and indicate the need for further more detailed feasibility studies which are ultimately to result in specific projects. Obviously, the line between such sector or subsector planning efforts and project analyses which try to take account of various systems effects tends to get somewhat blurred.

Conditions for Effective Sector Work

13. I am convinced that the Bank needs to be much more active in carrying out, organizing and supervising various kinds of sector studies. In particular, there is a great need for studies which come to grips with the problems of determining the broad outlines of efficient development in the various sectors. These should provide a basis for judging the appropriateness of current policies bearing on the efficient use of existing resources, and indicate the broad priorities for investment and other expenditure in the sectors so as to identify promising projects that may be financed by the Bank or others. It is not suggested that all those studies should be massive efforts. Careful consideration should be given to the type of study that is called for in any particular case. In many cases it may be desirable to make a preliminary study to identify more clearly the type of study that is required and the most suitable way of carrying it out. More generally, too little is known at present about the efficacy of the various approaches to these problems to be dogmatic about the way studies should be carried out. But one should insist that much greater efforts be made to face up to sector and policy questions in investment decisions. Otherwise, not only will resource allocation for the Bank and for the country itself suffer, but also will a serious danger arise that not sufficient projects will be forthcoming which the Bank can finance.

14. If these sector studies are to be effective, several conditions are to be met.

(i) The low-intensity studies in the various sectors should be adequately staffed. Even more important, they should provide for continuity and follow-up in a particular country so that successive studies made over the years are cumulative and gradually build up a store of knowledge and insights about the particular sector and country. At present our efforts seem frequently unrelated and repeat those made in earlier years.

(ii) High-intensity studies should be even more carefully planned, possibly through means of reconnaissance missions to identify the need, focus, scope, etc. They should be intensively supervised at all stages by Bank staff to ensure that they have the right focus, that they are properly carried out, that the results obtained make sense, and that Bank staff is fully familiar with the results obtained to carry through, after completion of the study, the continuing dialogue with the government.

(iii) Specific sector studies in particular countries should be backstopped by more general studies on policy issues and useful planning models, etc., to enable Bank staff to provide guidance in carrying out the sector reviews by consultants, and to evaluate their results, as well as to improve its own sector work.

Organization of Sector Work

15. In organizing the staff for more sector work the Bank should recognize that this requires certain qualities and capabilities which are somewhat different from those required for good project evaluation. Analytical ability, economic expertise and good policy judgment will be at a premium. The sector analyst tends to be more broad-gauged than the typical good project analyst. Staff of the requisite quality for sector studies could be organized in several possible ways.

(i) Separate sector studies divisions in the various Projects Departments would be responsible for organizing sector studies in various countries as required. In part they would make low-intensity studies themselves, and in part they would initiate, in cooperation with the Area Departments, and supervise large-scale sector studies carried out by consultants, whether financed by the UNDP or the Bank itself. These sector study divisions should have at least, say, 10 slots each, and probably more. They would be backstopped by the Sector and Projects Studies Division in the Economics Department which would continue to carry out general studies on sector and policy issues, planning models, etc., and advise and consult with the other sector studies divisions as required. Care should be taken that the sector studies divisions are not side-tracked from their responsibility for sector studies by getting involved in project preparation and evaluation work. It should be made clear to all concerned that sector studies are not of secondary priority, only to be carried out if the demands of project missions permit. As a safeguard, it may be desirable if a very senior staff member in the Front Office of the Projects Departments complex were given specific responsibility for supervising sector studies work.

(ii) Alternatively, to provide an even stronger safeguard that the needs for sector studies are not overlooked or given second priority, it might be desirable to combine the operational sector studies divisions envisaged above in one sector studies department. Under such arrangement, people with a similar orientation would work together, interchange ideas on methodological questions and coordinate studies of several sectors in a particular country. In the case of highly interrelated sectors, studies should in fact focus on two or more sectors at the same time. The more research-oriented Sector and Projects Studies Division might remain in the Economics Department. The respective functions would be the same as indicated in sub(i) above. The drawback of this arrangement is that there may be insufficient immediate interaction between the sector work and the project evaluation work in a particular sector and country.

(iii) There may also be some merit in combining all staff working on sector studies and related research problems into one department. This would have the advantage of assuring close cooperation and association between the staff carrying out or supervising actual sector studies and the staff more concerned with providing policy guidelines and improving

analytical techniques used in those studies. The drawback of this arrangement would be that the latter function would probably fall victim to the pressure of day-to-day work on sector studies.

(iv) If none of these arrangements work out, Area Departments should, as a last resort, probably be well advised to build up some staff expertise themselves to carry out at least some sector work.

16. Whatever organizational form is chosen, it should not be left in any doubt that at least 50 staff members, to begin with, should make sector work their principal concern, in order to fill the present void between macro-economic country work on the one hand and project evaluation on the other.

Streamlining Project Evaluation

17. It may bear pointing out that I am not arguing that the Bank should make more sector studies and neglect project evaluation. Careful project evaluation should, of course, continue. But changes in sector policies and more attention for the efficiency of existing resource utilization and the wide-ranging choices that are made at the early stages of the project identification/evaluation process are likely to be more important for the overall quality of resource allocation. For that reason, there should be a relative shift in emphasis between the resources used for sector studies and for project evaluation. Such a shift will be necessary anyway if the stream of projects suitable for finance by the Bank is to be maintained and widened.

18. The shift towards sector studies will be facilitated by a further streamlining of the evaluation procedures of projects. Considerable progress has been made over the years in the methods used, and efforts should be continued to clarify the underlying concepts and sharpen the analytical tools, for example, of sensitivity and risk analysis. Enough progress has been made, however, to mechanize the appraisal procedures at least for the simpler projects which conform to standard types. A set of standard models should be prepared for prototype projects in the various sectors. This will speed up the computer calculation of investment returns. It will also make it possible to make preliminary calculations on the basis of whatever rough data are available in the Bank before a mission goes to the field. This again will enable the mission to concentrate on assembling and checking the most crucial data. It also opens prospects for streamlining the appraisal reports by using standardized reporting schemes which present the basic data and assumptions used in tabular form. In short, it may be possible to make appraisal reports that are shorter, more informative, and can be prepared in less time.

HGvanderTak:zmc

cc: Mr. Stevenson
Mr. Baum

Mr. Warren C. Baum

November 22, 1968

A. David Knox *AK*

Evaluation of Project Benefits

We have considered two questions on the above. The first is which old projects might be suitable for a fairly detailed evaluation. The second is what data might we collect on new projects to permit a more systematic evaluation.

With regard to the first question there are a number of power projects which it would be interesting to study; some because we think they have gone reasonably well and others which have gone badly. So far as we can ascertain from a quick check a reasonable amount of data are in the appraisal reports and thus an evaluation would be possible. There is, however, an important gap. The assumptions underlying, for example, load forecasts are seldom if ever given. For those we would have to consult the feasibility studies. Our check of those is not complete but we are finding that a number have been destroyed.

The power projects we suggest are:

<u>El Salvador</u>	22-ES
	221-ES
	263-ES
	342-ES
<u>Nicaragua</u>	82-NI
	121-NI
	122-NI
	154-NI
	259-NI
<u>Uruguay</u>	30-UR
	132-UR
	152-UR
<u>Thailand</u>	175-TH
<u>Philippines</u>	183-PH
	297-PH

In telecommunications, there do not appear to be any projects which have been completed for long enough to make it worthwhile carrying out an evaluation at this time.

Mr. Warren C. Baum

- 2 -

November 22, 1968

In water supply, we suggest the following:

<u>Nicaragua</u>	26-NI
<u>Iceland</u>	311-IC
<u>China</u>	9-CHA

On the second question, I attach separate memoranda on power, telecommunications and water supply.

Attachment

cc: Messrs. Armstrong o/r
Howell o/r
Shipman
Vasudevan
White

ADKnox/mv

Mr. A. David Knox

November 22, 1968

Harold R. Shipman *HS*

Evaluation of Project Benefits - Water Supply and Sewerage Projects

1. Completed projects which are suitable for study are:

Nicaragua - Managua Water Supply
Iceland - Reykjavik Hot Water Supply
China - Taipei Water Supply

2. As per your request for comments on the data which could be collected for the future, the following are offered:

- I. Sales - Number of new connections and quantity per quarter by category.

a. Residential
b. Industrial
c. Commercial
d. Governmental
e. Public Standpipes

- II. Total Water Produced per month - from which lost or unaccounted-for water can be calculated.

- III. Prices - Revenue per month.

- IV. Operating Costs - Accrued, if accounting system permits; by month, broken down as follows:

Production	or	Labor
Treatment		Energy
Distribution		Chemicals & Supplies
Commercial		Other

- V. Capital Costs - quarterly

- (a) Depreciation - On total assets - kept separately from operating cost above.
(b) Rate of Return - On net fixed assets or total investment.
(c) Operating Ratio - Monthly and before depreciation.

- N.B. Interest and debt service would not be used in evaluation.

- VI. Fire risk - in some places, fire departments may have records on loss from fire per year. If such data exist, it should be collected at time of appraisal and could be compared for years after project completion. The problem will be to accomodate new building construction and other factors which may affect loss in the period under evaluation. Fire insurance rates could be checked to determine if any reduction has occurred as a result of the project. Data to be collected is as follows:

Mr. A. David Knox

November 22, 1968

Number of calls and total/average estimated property loss.
Annual estimated increase in property values. We should discuss this question with the fire underwriters to determine whether they have better means of evaluation.

- VII. Enteric disease incidence - Absence of reliable statistics makes this evaluation difficult. Dysentery is not normally a reportable disease and only shows up when a cause of death. Typhoid fever is reportable but diagnosis and poor reporting make accurate evaluation difficult. Nevertheless, we should try to obtain data. The following data is proposed.

Annual - (a) Reported typhoid cases, number of hospital beds occupied by typhoid patients.
(b) Infant mortality rate.
(c) Cause of Absenteeism in industry by cause.

- VIII. Number of private water systems, particularly commercial and industrial - These figures may be available or could be reasonably estimated in a number of cases during appraisal. If the number stays constant or gradually drops off after project completion, some evaluation of savings in import requirements for such systems might be made. The decision on whether the accuracy of the initial estimate will be sufficiently precise to permit later use will have to be left with the appraisal mission. Data suggested:

Annual - Number of private systems in use classified by residential and commercial/industrial.

- IX. Cost of transported water - Where sections of a city are supplied by water vendors, the cost of such water can be obtained together with some estimate of the amount involved. Data suggested:

Annual - (a) Number of vendors (classified so as to permit estimate of (b)).
(b) Estimated amount sold.
(c) Area served.

- X. On sewerage projects, evaluation of health benefits would depend upon unreliable statistics and even more uncertainty as to direct cause and effect. Persons served, volumes of sewerage and reduction in water pollution are the kinds of parameters that could be measured and evaluated. Data which could be collected annually is as follows:

(a) Receiving waters purportedly "protected" by system.

(i) BOD tests.
(ii) Coliform bacteriological tests.

(b) Ratio of sewerage connections to water supply connections.

Mr. A. David Knox

November 22, 1968

- (c) Areas not served as a percentage of total service area.
- (d) Number of private systems installed annually and costs involved.
- (e) Vital statistics annually on insect and rodent vectors of disease associated with waste disposal, e.g.,

Cases of Filariasis annually.

Cases of Schistosomiasis annually.

HRShipman/pbf

Form No. 75
(2-67)

INTERNATIONAL BANK FOR
RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL FINANCE
CORPORATION

INTERNATIONAL DEVELOPMENT
ASSOCIATION

ROUTING SLIP

Date

November 22, 68

NAME

ROOM NO.

OPERATIONAL FILES

236

To Handle

Note and File

Appropriate Disposition

Note and Return

Approval

Prepare Reply

Comment

Per Our Conversation

Full Report

Recommendation

Information

Signature

Initial

Send On

REMARKS

2063

C.P. Vasudevan

From

Telecommunications

Mr. A. David Knox

November 22, 1968

C.P. Vasudevan *cmr*

Evaluation of Project Benefits - Reference your memorandum of November 15, 1968

There are only a few completed projects in the telecommunication sector. For the purpose in view, none of these are likely to yield any useful lessons.

In respect of measuring actual benefits and costs against predicted, the information we should collect - and have available in a reasonable form for the current loans - are:

a) Sales broken down by categories

This would be revenue earned from

Telephone - Local
 - Long-distance
Telegraph
Telex
Miscellaneous

Also, in physical terms, the number of connected telephones and the number of lines connected.

The number of calls made from telephones is useful in estimating the benefits. However, this is not directly available since it involves generally an addition of several thousand individual meter readings made every month. The same data can be worked out from the revenue from local telephones by deducting from the total revenue the calculated value of monthly hire charges. In some cases, however, the charges for subscriber dialled long-distance calls are also recorded in the same meters as local calls.

Another piece of data that is sometimes compiled is classification by categories - business users, residences, etc. This classification is done where charging is by flat rate and also in some cases where call charging is made on the number of calls made. The classification is usually made on the location of the telephone rather than on usage and is not particularly useful, especially in systems where metered charging is employed. In any case, the proportion of telephones installed for other than business or professional purposes in underdeveloped countries is very small. The number of telephones by categories may be compiled where metered charging is not in vogue - the use of this data is, however, doubtful.

b) Prices

This would be tariffs.

c) Operating Costs

This would be
Salaries
Maintenance
Depreciation
Other

d) Capital Costs

This would be the construction program together with breakdown of costs for some major projects essentially for main exchange installations and for main long-distance routes such as by microwave links.

Except in respect of the types of major schemes given above, it is difficult to compile data for checking the accuracy of our estimates. This is because the telecommunication projects comprise of several individual works where the estimates are based only on averages; for example, in the case of urban networks which usually account for about 30 per cent of the expansion, the program is drawn up on an annual basis and the costs vary considerably from one cable scheme to another depending on the size of the cable and the route involved. In many such cases even the description of project is not too clear, to allow for the flexibility required.

The principal judgment on investment costs is based on average investment per telephone and the costs of identifiable major schemes.

There are no other components that can be identified easily with sufficient accuracy.

The data listed above are now available from progress reports and in a more reliable form from the annual reports. These data in the case of telecommunication can only indicate broadly aspects of costs and of sales, e.g. revenue increases arise not only from the new project but from increased usage of existing telephones.

The quantification of benefits from telecommunications is difficult since it is not possible to assign values to benefit from any form of communication in quantitative terms. However, telecommunications provide a cheaper form of communication - and a speedy and easy form too - than any other communication, including by mail, within large urban areas. Long distance communication is cheaper than personal visits and achieves the desired objective in most cases. More particularly it helps to increase the efficiency of transportation and of reducing the costs thereof, and plays an important role in promoting and

integrating the trade in the country - especially of bulk commodities like food grains and export commodities. Its importance to decentralization of administration and of industry, as well as to the development of suburban communities are all recognized. Its use for doctors and other professional people, for dealing with emergencies, etc. are clear.

However, there is no way of measuring or estimating these and other benefits.

CPVasudevan:pl

cc: Operational Files
Division File

Mr. Charles H. White

November 20, 1968

T.B. Russell

Evaluation of Project Benefits

1. I have checked on the extent to which the information normally collected at present on power projects provides the data mentioned in the third paragraph of Mr. Knox's memo of November 15 (attached).
2. I attach a list of the standard reports which borrowers are called on to provide in which I have summarized the data relevant to Mr. Knox's question. Items (c) and (d) of his list, covering operating costs and capital cost respectively, seem to be adequately covered but on sales and prices the standard report calls only for global figures (i.e. total sales and average prices), without specifying any breakdown by classes of consumer.
3. I have not had time to check to what extent the required information on (c) and (d) has actually been supplied on the projects covered in my previous memo on this subject. I have, however, looked up the most recent reports from Nicaragua as an example and find that they do, in fact, give the information in the form required. If this example can be regarded as typical, therefore, it seems that practice does conform to precept on this score.
4. It may be that the information supplied by some of the more sophisticated borrowers includes the additional data on sales and prices mentioned by Mr. Knox (the Nicaraguan reports do not) but I have not been able to check on this. If we wanted to be sure of receiving this information, presumably we should need to specify the requirements in our standard letter to borrowers.
5. The other potential sources of information on these points are the reports of the Bank's supervision missions. I find on looking at a recent example (Sudan - Loan 522-SU) that energy sales have been broken down by main demand categories. I do not know whether this is now standard practice but, if so, it would give the information required under (a). There appears to be no comparable analysis of prices.
6. It would be desirable, as Mr. Knox suggests, to take account of external economies (or diseconomies) associated with any particular project. The problem, however, is first of all to identify and then to quantify these, which may be more difficult for power than for water supply projects. I suspect the most we may be able to do at present is to refer to such additional benefits (or costs), where they appear significant, in purely qualitative terms.

TERussell:mb

cc: Operational Files
Division File

PROGRESS REPORTS REQUIRED FROM BORROWERS IN RESPECT OF POWER PROJECT LOANS

I. Technical

- A. Quarterly - to include comments on design or schedule changes which might affect Project cost.
- B. Completion - (1) on each section;
(2) final completion - to include statement of final costs of all sections of Project.

II. Financial

- A. Quarterly (for incorporation in I.A above) - to include:
 - (1) information on departures from original cost estimates, with explanatory comments on major divergences;
 - (2) analysis of customers' accounts receivable.
- B. Half-yearly operational reports - to show, inter alia:
 - Sales in kwh
 - Average revenue per kwh
 - Operating costs
- C. Annual financial statements - to include:
 - (1) audited financial statements;
 - (2) forecast cash flow for at least the next 4 years.

Mr. A. David Knox

November 20, 1968

Harold R. Shipman


Evaluation of Project Benefits - Water Supply and Sewerage Projects

1. Completed projects which are suitable for study are:

Nicaragua - Managua Water Supply
Iceland - Reykjavik Hot Water Supply
China - Taipei Water Supply

2. As per your request for comments on the data which could be collected, the following are offered:

- a. Items a - d should be included.
- b. Fire risk - in some places, fire departments may have records on loss from fire per year. If such data exist, it should be collected at time of appraisal and could be compared for years after project completion. The problem will be to accomodate new building construction and other factors which may effect loss in the period under evaluation. Fire insurance rates could be checked to determine if any reduction has occurred as a result of the project.
- c. Enteric disease incidence - Absence of reliable statistics makes this evaluation difficult. Dysentery is not normally a reportable disease and only shows up when a cause of death. Typhoid fever is reportable but diagnosis and poor reporting make accurate evaluation difficult. Nevertheless, we should try to obtain data during appraisal.
- d. Number of private water systems, particularly commercial and industrial - These figures may be available or could be reasonably estimated in a number of cases during appraisal. If the number stays constant or gradually drops off after project completion, some evaluation of savings in import requirements for such systems might be made. The decision on whether the accuracy of the initial estimate will be sufficiently precise to permit later use will have to be left with the appraisal mission.
- e. Cost of transported water - Where sections of a city are supplied by water vendors, the cost of such water can be obtained together with some estimate of the amount involved.
- f. On sewerage projects, evaluation of health benefits would depend upon unreliable statistics and even more uncertainty as to direct cause and effect. Persons served, volumes of sewerage and reduction in water pollution are the kinds of parameters that could be measured and evaluated.


HRShipman/CAMorse/pbf

Division Chiefs

November 15, 1968

A. David Knox

Evaluation of Project Benefits

This is to confirm our discussion this morning that we are asked to supply two types of information on the above.

The first is a list of completed projects which we regard as suitable for a detailed study as to of how far the loans made achieved their objectives and, if not, why not. For this purpose we will have to choose projects from which we think useful lessons can be learned and for which the appraisal reports contain a sufficient amount of information on anticipated benefits, including any organizational improvements, to make it possible for someone to determine today whether the benefits have been realized.

The second item is to provide a list of data which should be collected on a systematic basis during the life of a loan to permit us to measure actual benefits and costs against predicted. I attach an excerpt from a paper prepared by the Economics Department on this subject. For public utilities projects it seems clear that we should collect at least the following:

- a) Actual sales broken down by principal categories:
- b) prices;
- c) operating costs;
- d) capital costs.

The question is whether there are other components entering into benefits and costs which we should try to identify. For example, in water supply projects we sometimes claim benefits in terms of improvements in health or of reduction in fire risk.

I should like to have memoranda from you on both the above items not later than close of business on Wednesday, November 20.

cc: Mr. Hittmair
Mr. Shipman
Mr. Vasudevan
Mr. White
Mr. Arnold

ADKnox/mv

Mr. A. David Knox

November 4, 1968

cm
C.P. Vasudevan

Telecommunications - List of Projects which may be taken up for review

The completed projects in the telecommunications sector are in respect of Costa Rica, Ethiopia and India.

No special review of these projects is called for. They have been or will shortly be coming up for review during the appraisal of current loan applications from these entities. Also, the India telecommunication project was completed only last year and a review was made then.

CPVasudevan:pl

cc: Operational Files
Division File

Mr. Warren C. Baum

November 4, 1968

D.S. Ballantine 1403

Follow-up (Evaluation) of Projects

Regarding Mr. van der Tak's memorandum of October 24, like many others, I am struck by the almost total lack - after 20 years - of any systematic procedure for ex post evaluation of projects. This should not suggest that the Bank does not profit from experience in many ways; nevertheless, it does recall the useful half-true maxim that "those who do not study history are doomed to repeat it".

I think the memorandum provides a useful breakdown of objectives and a starting point for initiating some more systematic activity. I get an uneasy feeling that this kind of activity could balloon into substantial Parkinson-like requirements for staff and the assembly of masses of data. This tail ought not to wag the dog but it should wag enough to suggest whether the dog bites.

Specifically, in the Education Department, we have built into the Cooperative Agreement a provision for some kind of ex post evaluation and Unesco has already done one exercise (first Tunisian project), the report of which is not yet available.

The Cooperative Agreement states:

"Unesco will, in cases agreed with the Bank, assume responsibility as part of the Cooperative Program, to ascertain, both through field inspections and through review of periodic reports, and to advise the Bank whether the educational objectives of the project are being achieved and whether the obligations undertaken by the borrower in this connection are being fulfilled."

Obviously we cannot pursue this kind of evaluation until the construction is complete and the schools have students and are in operation. Moreover, it was noted that as one of our first projects, the Credit Agreement and even the appraisal report said relatively little about "educational objectives" so that Unesco's mission had very little indication of what to measure.

Since then we have been more venturesome and explicit in defining educational objectives (e.g., the educational objectives side letter) and presumably we will continue to increase our concern as well as our assistance to achieving educational objectives.

I concur completely in van der Tak's suggestion that the evaluation should be made by persons who were not involved in the appraisal, etc. but are familiar with the history of the project.

In this sense Unesco would normally be a very good agent even though their performance in this, as in other things, might be spotty. I think we could work out with them satisfactory procedures and definition of ex ante data requirements which would meet the need for ex post evaluation of the benefits of education projects. (As and when our economic methodology emerges we would wish to extend the term "educational objectives" to include review of the manpower and cost benefit elements as well as questions of administration, financial projections, etc.)

The question of evaluating the implementation of the project itself seems to me a good deal more straightforward and one in which the process for the Education Department would not differ very much from that of other sectors.

DSB:sfu

Mr. Baum

OFFICE MEMORANDUM

Please

return

DATE: October 31, 1968

TO: Messrs. Ballantine, Evans, Knox, Sadove

FROM: Warren C. Baum

SUBJECT: Follow-up (Evaluation) of ProjectsOct 24/68
from Mr. VandeTone
to Mr. BaumMr. Baum
(only copy
available)

Attached is a copy of the memorandum on this subject, which was mentioned at yesterday's staff meeting. Could we meet to discuss it, and any other suggestions you may have, at 3:00 p.m. next Tuesday, November 5th?

Attachment

cc: Messrs. Lipkowitz
Piccagli
Rovani

WCBaum:bli

OFFICE MEMORANDUM

TO: Mr. W. C. Baum

DATE: October 24, 1968

FROM: H. G. van der Tak *HG*SUBJECT: Follow-up of Projects

I refer to our recent conversation concerning what we are doing or planning to do about follow-up of projects after a loan is made. I have discussed this with Messrs. Reutlinger and de Weille. The attached note briefly reviews past and present efforts and makes proposals for greatly expanding activities in this area, as a basis for further discussion.

We look forward to discussing this question with you in the near future.

HGvanderTak:zmc

cc: Mr. Kamarek
Mr. Stevenson
Mr. Reutlinger
Mr. de Weille

W. Baum

My instructive reaction =
Post-Evaluation (What about this word?)
Should be done "operationally" on day
25 % of project by our Dept. 1 and
in depth on way but by economics -
But let's get our Div's reaction
[Signature]

FOLLOW-UP EVALUATION OF PROJECTS

I. General Background

1. Many people in the Bank have expressed concern over the past lack of effort to follow up and learn from the development impact of Bank projects. So far, this concern has not been translated into remedial action. The purpose of this memorandum, therefore, is to review past and present efforts and to suggest how the Bank could intensify project follow-up activities now and in the future.
2. Ex post evaluation of public projects has become of increasing concern in many agencies. A growing tendency to base ex ante project appraisal on rational analysis has also made it feasible and necessary to make more ex post evaluations. As evidenced, for instance, by recent experience with U.S. manpower development programs, it has become standard procedure for government programs to require and to allot funds to a careful ex post evaluation of a program's performance. Can the Bank afford to do any less?
3. If anything, the Bank has an even greater need to follow up projects than governments in the developed countries. The Bank has a potential comparative advantage in collecting and evaluating data on ongoing projects in the less developed countries and in transmitting follow-up experience to its member countries. This would complement its efforts to improve project appraisal procedures. Since efforts by national and international agencies in this follow-up area are mostly inadequate, there is very little risk of duplication and much opportunity to tap experience for useful policy reevaluation. At the very minimum, resources committed to this area should be equal to those used in gathering macro-economic statistics.
4. This memorandum deals only with the purpose and substance of follow-up activities, leaving organizational issues for subsequent

consideration. At this time, we suggest only that project follow-up would be most usefully performed by an agent not directly involved ^{Ne} - either in the original appraisal or in the supervision of the projects, yet fully informed on project history. It should be remembered that the follow-up is primarily research-oriented and should not be handled like an accounting audit.

II. Past Efforts at Follow-up

5. Past attempts to follow up Bank projects have been limited in scope, depth and number. The Project Supervision Reports, formerly called End-Use Reports, provide a limited follow-up of projects during the construction phase. They often compare original and final cost estimates and discuss the reasons for differences. Sometimes they also contain some reference to the benefits as originally estimated and some data on the actual development (e.g., traffic counts in case of road projects). In addition, they may occasionally provide some information on another, similar project in the same country which the Bank has financed some time before.

6. In "A Review of 62 Road Project Appraisal Reports"^{1/}, an attempt was made to analyze systematically the quantitative information in 62 road project appraisal reports prepared by the World Bank from 1960 to 1966. This attempt was largely unsuccessful, however, because the information contained in the appraisal reports was insufficiently detailed and/or defined for the purpose of such an analysis. Because of the Bank's fairly unique potential for providing comparable data on road projects all over the world, the authors make some suggestions in this paper as to

^{1/} J. de Weille and H. Angeles, "A Review of 62 Road Project Appraisal Reports", Economics Department Working Paper No.5, December 4, 1967.

how this potential might be exploited.

7. The Reappraisal of a Road Project in Iran^{1/} has been the Bank's first and only attempt thus far to reevaluate in some detail one of its projects. One of the authors' recommendations is "that during the period of project supervision as well as later a more systematic effort be made to gather information on the economic results actually obtained from the projects". "Development Projects Observed"^{2/} is an attempt by Albert Hirschman to extract lessons on administrative, political and social factors governing success or failure from a series of Bank projects.

8. Finally, under some of the Bank's recent loan agreements the borrower is obliged to provide the Bank regularly with some specified information (in the case of road projects, e.g., with traffic count data for certain roads).

III. Current Efforts at Follow-up

9. A new data bank questionnaire has been designed to collect information from project appraisal and supervision missions about new projects until completion of construction. It will only provide a part of the information necessary for full follow-up. Information derived from the questionnaire should be useful in identifying operational bottlenecks, and coverage should be more systematic than in the case of the project supervision reports. However, the data requirements for an

^{1/} H. G. van der Tak and J. de Weille, "An Economic Reappraisal of a Road Project: The First Iranian Road Loan of 1959" (IRN-227), EC-147, September 26, 1966. This study is shortly to be published by the Johns Hopkins Press.

^{2/} Albert O. Hirschman, "Development Projects Observed", The Brookings Institution, Washington, D.C., 1967.

appraisal of cause and effect relationships are not spelled out in sufficient detail and the questionnaire still does not provide guidance on how data are to be collected. Thus, it will be difficult to ascertain the validity of data obtained from the questionnaire for particular analysis.

10. The Economics Department is currently carrying out an evaluation of experience during the construction phase of 15 Bank irrigation projects. The study is first reviewing those changes in construction costs and schedules, as recorded in supervision reports, which have not affected the nature of the project or the benefits as initially conceived. The effect of these changes on the rate of return based on the original expected results is calculated. The report will then briefly describe changes which have been made in the nature of the project and the anticipated gain or loss in benefits, to provide background for field investigations to reappraise project benefits.

IV. Proposals for New Follow-up Procedures

11. Follow-up activities have two major purposes:

- i) Monitoring implementation of a project in order to alert the Bank and the authorities concerned to any difficulties and delays in construction, or utilization that may arise so that remedial action can be taken.
- ii) Learning more about the functioning and impact of projects, and the relevant relationships determining the outcome of projects, to provide a basis ^{and} for appropriate policies, better resource allocation and design of projects.

*No. Application
of Projects.*

12. Specifically, three research-oriented follow-up procedures are suggested:

- a) Systematic reporting and evaluating of actual against predicted benefits and costs for all new projects (simple indicators).
- b) In-depth data collection on all aspects of project impact, included as an integral part of project execution, for selected individual projects (complex indicators).
- c) Major reappraisal of impact for selected projects.

The needs both of monitoring and comparative research should be met by the planned project data bank, provided that its scope is properly extended.

13. For several reasons, discussion below centers primarily on the design and collection of data for new projects. First, the proposed activities tie in with the budding interest in establishing^a general project data bank. Second, the proposed activities require major administrative decisions on staffing and organization. Third, the chances are better with new projects that the Bank will receive the needed cooperation from all parties concerned.

14. However, it would be extremely advantageous to include some projects which have already passed through the construction phase and are now entering the benefit phase. As far as is possible, the major reappraisal studies should cover selected projects in this stage.

A. Systematic Collection of Actual Benefit and Cost Data

15. The primary objectives of this activity would be to provide the data basis (i) for monitoring projects during their implementation phase for operational purposes, and (ii) for comparative research on actual behaviour of benefit and cost variables in relation to their anticipated behaviour. Through systematic data collection and periodic evaluation, it should become possible to identify the major erroneous assumptions used in appraising projects and to recommend policies to improve project *(appraisal)* performance.

16. This type of data collection and evaluation is only likely to produce results if the original project appraisal reports spell out in considerable detail all assumptions and predictions. General propositions with respect to benefits and costs, even when quantified, cannot be effectively evaluated. Lessons concerning appraisal methods and predictions cannot be learned unless information is available on the components entering into costs and benefits. At best, data on many benefit factors can be combined with some reasoned judgments about unmeasurable phenomena to construct an estimate of total project benefits. It is imperative to sort out the systematic biases made in the original projections. Actual benefits, or costs, may differ from original projections because of either faulty predictions or unforeseeable events.

17. Setting up a system for the collection of project data requires integrated planning of the kinds of evaluation to be made, of the data required, and how and by whom the data are to be obtained, reported, assembled and evaluated. The data bank procedures recently initiated

only partially meet these requirements. They need to be extended and adapted to serve the dual purpose of monitoring projects, also after completion of construction, and comparative research on behaviour of benefit and cost variables.

18. Eventually, all new projects would be covered in the above reporting program. Initially, a list of items to be reported on would be prepared for each type of project, but to assure successful implementation, data collection and reporting requirements should probably be tailored to each project. Special efforts should be made to define clearly the variables to be collected. In selecting them, one should weigh their value for analysis against the difficulty and cost of collection.

19. Tentatively, the responsible agent would proceed as follows:

- a) Compile a list of variables for which data are to be collected and record their predicted values at the time of appraisal.
- b) Prepare a proposal on how data should be collected.
- c) Decide whether to recommend that the borrowing country be given any special incentive or assistance for the reporting of data, and if so, in what form.
- d) At the time of loan negotiations, determine what person or agency in the country would be responsible for data reporting.
- e) Handle data records, to be kept inside the Bank, either inside or outside computer.
- f) Periodically report on project developments.

B. In-Depth Collection of Data on Selected Projects

20. The objective of this activity would be to permit a thorough ex post evaluation of a project's benefits and to estimate basic causal relationships between variables. Experimental design features would be incorporated into the chosen projects. This should make it possible to evaluate the development impact of specific projects and project features in specific environments.

21. A small number of projects would be chosen to represent major lending activities of the Bank Group and to highlight central problems of a particular geographic area or of a particular class of projects. Other important selection criteria would be the ease with which data collection and experimental design could be built into project execution and the availability of a suitable agency to handle data collection.

22. In some cases, the desired data may already be collected as a matter of routine by an existing country agency. In other cases, minor adjustments in the existing reporting system may be sufficient to provide meaningful data for this kind of project evaluation. Otherwise, a special survey scheme may have to be established and an organization designated. The complexity of the desired data, the country's capacity for statistical reporting, and the ability of the project appraisal team to define and organize data reporting schemes would determine whether the Bank agent for data collection would need to visit the projects in question.

C. Major Reappraisal of Selected Projects

23. The objective of these studies would be to reappraise the total impact of a project and various project features in different circumstances. Particular attention would be given to projects which

have proved to be unusually difficult to appraise for lack of adequate data.

24. For some time such studies in depth, as well as the comparative studies referred to earlier, will have to be pursued without the benefit of the proposed data collection schemes. They would be carried on as part of the regular research program in the Sector and Project Studies Division of the Economics Department. Pending the results of the current irrigation projects study, a similar appraisal may be followed in future studies. In this case, the first stage of the study would consist of a careful desk review of a number of projects in the designated class. Field investigations would follow, for one or two whole projects or for a few selected project features in a large number of projects.

V. Summary

25. Current efforts and plans in both the Projects and Economics Departments fall far short of meeting the minimal needs for ex post project evaluation. If any real progress is to be made in learning systematically from project experience, the designing, collecting and recording of project data must be given high priority. Some proposals for new follow-up activities are outlined above.

26. Further discussion of these proposals should also consider the desirability of establishing a small project data and evaluation unit, staffed initially with three to four professional staff members from the Sector and Projects Studies Division in the Economics Department. The project data generated by such a group should be in high demand both inside and outside the Bank. The Bank could enjoy a large degree of comparative advantage in this area of research.