

## IMPACT ASSESSMENT AND PROJECT DEVELOPMENT: AN OVERVIEW

*Florian Alburo and Bruce Koppel*

### I. INTRODUCTION

The evaluation reports included in this special issue of the *Journal of Philippine Development* were all written by junior level government employees from the National Economic and Development Authority (NEDA), the Ministry of Local Governments, the Philippine Ports Authority, and the Davao City Water District. The reports are a product of a nine-month training and application program designed to encourage the institutionalization of broad-scoped project impact evaluation skills and strategies within the identification-implementation-evaluation cycle of Philippine government projects. The training program was designed and implemented by the micro component of the Economic and Social Impact Analysis/Women in Development (ESIA/WID) Project and the Food Systems Program of the East-West Center Resource Systems Institute (RSI). The ESIA/WID Project was supported by the Philippine government and the United States Agency for International Development and was managed by the Philippine Institute for Development Studies. The micro component was managed by the Philippine Center for Economic Development at the University of the Philippines School of Economics. The training program was supported by the ESIA/WID Project, the World Bank (through the Regional Planning Assistance Project of NEDA), and the East-West Center.

The training program was conceived as part of an effort to enhance the capacity of Philippine government personnel to recognize broader social, economic and environmental impacts of projects. It is believed that enhanced recognition of broader impacts will improve the relationship between project design and the achievement of

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University of the Philippines School of Economics and East-West Center, respectively.

national and regional development objectives. Impact analysis does not replace the usual forms of financial and economic analyses that normally accompany project development. It builds on and goes beyond those forms of analysis, however, by asking questions such as: What difference does a project make in the area influenced by the project? What are the project's *indirect* as well as direct effects? What, if any, are the project's *unintended* as well as intended effects? If we see a certain impact sequence for a project in one situation, under what conditions can we expect a similar project to yield the same sequence of impacts in another situation? The "outputs" of a project (a road, an irrigation canal) are the *beginning* for impact analysis: What difference does a road or an irrigation canal make? To whom? In what ways?

Impact analysis is not a set of techniques, but rather a set of logics about the attribution of cause and effect in directed socio-economic change. The broader objective of the ESIA/WID project was to examine, refine, test, and codify such logics as they relate to monitoring the implementation of the National Plan as well as determining the impacts of specific development projects and programs. The micro component of ESIA/WID concentrated on project specific impact assessment.

In the remainder of this overview paper, we will review the micro component of ESIA/WID which provides the context for the other papers, the relationship of the training program to the micro component, and the significance of the efforts represented in the nine reports that follow.

## II. ESIA/WID MICRO COMPONENT

### *Background*

Changes in development objectives, planning formulation and administrative machinery have dictated the manner by which impact assessment (and its research) has evolved in the Philippines. The expansion of development goals from narrow economic targets to broader social concerns has necessitated the need for systems to measure and monitor social conditions. The devolution of development planning through the preparation of regional plans as a basis for national plans has accentuated the desirability of being able to generate programs and projects systematically and in consonance with wider developmental concerns (Reyes 1978).

The need for widening impact areas was not only sensible but seemed necessary for a variety of reasons. For one, the effects of development projects run the whole gamut of many concerns, though with varying time paths. For another, the explicit consideration of wider impact areas allowed the understanding of certain trade-offs among concerns unlikely to be readily seen in assessments with a narrower focus. Finally, with accounting for effects beyond secular interests of sectoral managers goes better coordination and more mutually reinforcing project design and implementation.

A program of research was initiated in order to identify, test and refine frameworks and methodologies for broader forms of project impact analysis. Ten areas of development concerns were determined to be the minimum number the research needed to address. Eighteen projects were identified to be studied, cutting across a variety of projects (infrastructure, social, economic). A number of disciplinary orientations were drawn into the research — economics, sociology, public administration, biology, engineering, anthropology, political studies, education, psychology — held under the common theme and agenda of impact assessment.

### *Research Design: Some Considerations and Issues*

Despite the fact that several disciplines (each with a different orientation) participated in the research, the common problem of impact measurement and analysis resulted in an effort to achieve a similarity of approach and response, especially conceptualization. In the formulation of the impact framework, the aim was to view a development project in some abstract sense as affecting the areas of concern through specific channels. The way the channels were identified or drawn up was partly a function of the discipline involved in the research. For instance, sociologists saw impact more according to its effects on health and nutrition, literacy, and population while economists considered its discernible effects on income, productivity, or employment.

Another distinction was between outputs and inputs of development projects and what the impact analysis would cover. Some believed that impact evaluation could be misspecified if no account were taken of the manner by which projects were being managed or of the rate at which delivery of inputs was proceeding vis-à-vis the completion of outputs (Alburol 1981a). Others believed that some standard level of output must be assumed, and that its impact

must be studied. After some discussion, it was agreed that impact analysis in the ESIA/WID (Micro) Project could trace the transformation of outputs into impacts, i.e., input delivery could be assumed to take place, and changes in output and their relation to changes in areas of concern should be regarded as relevant research aspects. An irrigation project, for example, may be different from a health project or an electrification program, yet the impact analysis frameworks for all three could have something in common, for impacts arise from the use of outputs which are themselves products from the use and combination of inputs.

The translation of the frameworks into testable designs took a number of stages beginning with the ideal and ending with the feasible. In the same manner, the various methodologies considered ranged from the ideal to the feasible. Methodological alternatives naturally followed discipline orientation. Contingency tests, analyses of variance and covariance dominate the noneconomic social sciences while multiple regression analyses preoccupy the economics discipline. For the latter, truncated input-output analysis was considered as an alternative to multivariate regression techniques. Eventually, the limitations of data and considerations of critical appraisal of alternatives led to the adoption of more modest methodologies.

The approaches used in the analysis of impacts faced some common, discipline-neutral issues. One particular example is the sensitivity of any coefficient indicating impact to selection bias in the distribution of recipient units of the development project. In other words, a project could be "successful" largely because recipients' characteristics lead it to be so or that it could happen in any case. Two specific modes of adjustment were taken. One was to study in more detail the process of beneficiary or recipient selection, i.e., how projects are decided to be implemented in given impact areas. The other was to develop statistical ways by which one could find out whether certain characteristics increase the probability of receiving a service or benefitting from a project. Addressing this point prior to analysis eliminates the inherent problem of nonrandomization and the need to adjust derived numerical parameters.

The question of imputation and attribution lies at the heart of the evaluation problem. When one moves from simple association to a sense of causality regarding effects, impact assessment faces important limitations. There are technical procedures that can be

followed that facilitate analyzing correlations in terms of causality (Simon 1954). But the entire solution is clearly far from technical. Attribution of causality is based more on theory and reasonable tracing of the processes by which projects lead to changes in behavior and, ultimately, areas of concern.

This research did not skirt the issue, but neither did it consider the causality problem as one that would be solved by ESIA/WID research. Rather the challenges accepted were: (1) to posit alternative hypotheses that explain how impacts are achieved, (2) to develop measures, variables and indicators, and (3) to subject them to actual empirical data. Consequently, ESIA/WID micro investigations utilized two vehicles: (a) traditional theory, and (b) a realistic feel of actual field conditions where the projects were being implemented.

Projects tend to cluster with respect to geographical areas or population groups. For example, certain farmer groups are beneficiaries of credit programs, road projects, irrigation facilities, education, etc., with each having different time paths of implementation. What this means is that in impact assessment it would be difficult to separate out independent effects of various kinds of projects let alone attribute changes to any one. A pragmatic approach was followed in the research investigations to respond to this basic issue. The selection of the project sites for the studies was carefully made with consideration of minimizing possible confusing effects of on-going projects other than the one being investigated. Program staff were consulted in the selection. In the integrated projects, the investigations suggested: (a) looking into the administrative structure setup for the integrated delivery of the projects, and (b) comparing some results which can be attributed to the integrated schemes with a single project.

### *Research Implementation: Issues and Lessons*

Fifteen impact studies were pursued to completion although not all reports were finished at the end of project activities. The project studies generally (but not neatly) fall into infrastructure (irrigation, roads, ports, water system), economic (small industry, aquaculture extension, electrification, integrated area development), and social (education, health, family planning, tourism, agroforestry). The areas of concern to which the studies were addressed include the traditional economic (income, income distribution, production/productivity, employment) and social (population/fertility, health/

nutrition, education/literacy) ones plus newer areas of concern (environment, energy, participation) and those which are specific only to individual projects (e.g., foreign exchange, peace and order). The projects studied and the areas of concern were determined by government, not by academic preference. They were, in fact, derived from existing development plans and documents and were determined with an eye to reflect illustrative types of projects for which serious evaluations are necessary.

The investigations used a number of methods for gathering information as a basis for the analytical studies. First of all, it was considered that secondary data are essential in order to have a context of the project site as well as the outlines of possible impact measures. The efforts revealed that use of secondary data to analyze impact faces significant limitations. One is the extent of coverage and level of aggregation. The requirements for micro analysis suggest information needs at small units such as households in given small political units. Many regular statistical series do not have extensive samples at these levels and frequently they are small percentages of entire populations. Another is the amount of data available even where regular series can be retrieved. Most are simply demographic in nature, do not have adequate related economic data, and do not indicate exposure to a project (Duncan 1981). Thus, not much by way of data analysis can be achieved. Third, while implementing agencies do gather data and monitor work progress regularly, the data are often inadequate for evaluation of impact. For example, though there may be information on characteristics of recipients often there is no comparable information on nonrecipients with which to analyze effects. Finally, the putting together of data from a variety of sources with different sampling frames, questionnaires, and definitions demands strict assumptions in order to derive analytical results with a substantial degree of reliability and validity. In other words, there would always be room to splice data from secondary sources but the results of analysis especially for policy and program decisions would be less meaningful.

The principal method used for obtaining primary data by most of the studies was the survey. Surveys fall into two categories: one, a comprehensive attempt to collect a universe of data, and the other, an exercise restricted to obtaining supplementary information. The former is reflected in the length and depth of survey instruments used (many over a hundred pages long and representing around three hours of interview time). In addition, perception questions

were asked of respondents to allow comparisons between objective indicators of impact and subjective judgments of them. The rationale behind the comprehensiveness of data collected was to experiment with various indicators for a given concern and to test their reliability. Households, service users and establishments were the targets of the surveys, drawn randomly or purposely. In the evaluation of roads, a market basket survey was also run to find out changes in the quality of market transactions after the road construction (Cariño and Carada 1982).

Apart from these traditional sources of data and information, the studies also explored three other methods. One is the use of a key informant survey wherein a community's leaders (e.g., village leader, priest, doctor, etc.) are queried about the (quantitative) impact of a project on their community. The idea is to be able to capture both the direction and magnitude of the impact, as perceived by the leaders. The second method is group interview that allows the content analysis of responses. While not limited to a select group of "respondents," this method allows greater probing into the possible causes and transmission processes of project impact. And when the content analysis is specialized, it might even yield more useful insights (de los Angeles 1982). Finally, a number of the researchers carried out case studies to highlight very specific illustrations of impact on selected populations or households. In a few of the studies, the number of cases was tied to the degree of incidence of impact which in turn was associated with the phase of project implementation (Guerrero and Jurado 1982; Ocampo 1981).

Whatever analytical techniques were used, a common problem was present: how to judge numerical differences among indicators as evidence of impact. Two approaches were followed: (a) a comparison of current magnitudes with values for the same variables in some past time period, and (b) a comparison of current magnitudes with values for the same variables in another similar site for which the project was not being carried out.

### *Research Analysis: Strategies and Issues*

Well-tested techniques (e.g., chi-square critical values) were followed in the comparative analysis to test for differences in variables between households exposed to project outputs and those that were not. The liberal use of contingency tables in the studies mirrors the confidence that social scientists have placed in the techniques

(Tabada 1982; Torres 1982; de los Angeles 1982). Multiple regression analyses were utilized in at least five impact studies — electrification, irrigation, industry promotion, integrated area development, education — by investigators whose primary discipline is economics. Multiple regression analysis was also used in studies by investigators whose primary disciplines were outside economics (Arong and Hagad 1982; Guerrero and Jurado 1982). Path analysis was applied in the study of the impact of family planning programs (Concepcion and Fliieger 1981). The process followed was similar to regression, i.e., taking each area of concern and tracking down the various effects and measuring the path coefficients of the implied structural system (Duncan 1966; Albuero 1981b). The study on the impact of a textbook production and distribution project utilized factor analysis as its main starting point (Arong and Hagad 1982). The point was to reduce the size of the data set into composite indices that signify a relevant concept. Thus, indices were constructed for teacher quality, socioeconomic status, school quality, and textbook use. The factors were then entered as independent variables in multiple regressions of, say, test scores.

Rather than discussing individual study findings or specific numerical parameters derived from the analyses, three broad and general results will be elaborated on in the remainder of this section. These pertain to the results in terms of significance to policy, the results in terms of methods used, and the results in terms of improving approaches to impact assessment.

If one were to look at the studies across projects, it would be possible to draw out particular insights which, in turn, imply policy options. For example, employment effects of small-scale industry, small-scale irrigation, road development or health projects are addressed by each study. Common measures are followed, and these allow comparability. Thus one discerns that marginal employment impacts of irrigation and road development are greater than small industry promotion or health projects. The same comparisons can be made for impacts on income distribution. Thus, the findings say that the distributional effects of irrigation projects are better than those of small-industry or rural roads with an uncertain and longer gestating impact from a health project.

Results such as these, when cast in the frame of development planning and numerically specified, have a clear significance to policy and development strategies. Indeed, if employment promotion is



a serious goal, the cross-analysis of the studies suggests the comparatively greater contribution of irrigation projects. The associated trade-offs from different projects are identifiable, and provide specific options for policy and program direction. Some of the findings support previous studies or tend to strengthen results of more aggregative analyses (Gibb 1972; Albuero 1982).

The alternative methods used in the studies likewise suggest useful insights concretized by the results of the studies. Where quantitative indicators are used, the results regarding impact appear similar whether they are objective or subjective (i.e., perception variables). The consistency is at least in terms of direction of impact, not necessarily magnitude. Where impacts are difficult to objectively quantify, subjective evaluations tend to be exaggerated. In tests of the impact of health and small-industry promotion, direction of effects is the same using either objective or subjective indicators (Guerrero and Jurado 1982; Pernia 1982).

The case-studies approach, while providing detailed insight and color, appears to have limited generalizability. The results of the case studies indicate that the transmission process of impact from the projects can be visualized and that one can derive conclusions on possible chains of causation in the process. For example, in the study of the health project, cases were studied according to the effectiveness of the health delivery worker, with the consequent finding that the more effective workers tend to have greater impact, all other things being equal (Guerrero and Jurado 1982).

Experimentation with a large data set and alternative techniques, in addition to a number of methods, yielded some important results. In the end, some authors only used about half of the information collected for the impact analysis (Cariño and Carada 1982). The important point, however, is that alternative indicators applied in the analyses allowed judgments on the reliability of various variables to reflect areas of concerns.

The more rigorous techniques used in the studies (multiple regression, factor analysis, discriminant analysis, path analysis) have fairly satisfactory results in terms of expected signs and standard tests of significance. While a number of questions may be raised about the appropriateness of particular techniques to a given problem, it is apparent that when coupled with a clear understanding of the mechanisms of impact, the results can give meaning to the analysis of project effects. In effect, the choice of which techniques

to employ depends on the degree to which precision is desired (Herrin 1982; Paderanga 1982; Paris 1981; Pernia 1982).

A final general result that can be derived from the studies is the range of issues that have been faced and dealt with, the approaches followed, and the underlying qualifications that emerge out of the analyses. At least three need to be mentioned. The first is the (limited) tests for the sensitivity of various indicators for reflecting impact. In one sense, the studies reveal how significant alternative variables are when employed in impact analysis. In the health project, alternative measures of SES (socioeconomic status) were tried in relating to areas of concern (e.g., education of husband or wife, income). Conversely, several indicators which reflected health status (e.g., number of days sick, number of times to visit health centers) and which were related to traditional independent variables were tried. These have been possible because of the opportunity to try out alternative specifications from a large data set (Guerrero and Jurado 1982).

The second is the importance of recognizing that the impact is in part determined by the extent of program implementation and project management, as well as by directly induced behavioral changes. It is difficult to detect the quantitative magnitudes involved without defining optimal organization and implementation. Nevertheless, there is recognition of this fact, and some of the studies argue that for any given project the impacts are expectedly accentuated the better it is implemented and organized. The study on rural roads argues that the manner of project implementation poses significant variations on impact. Similarly, the impact analysis of the health project documents the strength of the auxiliary worker supervision and management in increasing impact. These, along with others, provide validity to the need for appreciating the relevance of organization and management of projects in achieving impact. Yet while such an issue is important, it is different from the issue of impact tracing which must of necessity assume some given level of implementation.

Finally, like any other evaluation, the studies were fraught with the usual problems of self-selection bias in project location. The bias stems from the notion that service users or beneficiaries are selected on the basis of some criteria (e.g., income, education, assets, etc.) rather than randomly drawn, such that the methodology applied becomes inappropriate. In another vein, the bias can also be self-

generated wherein only particular groups (households, users, establishments, etc.), by reason of certain attributes, seek to avail themselves of a project. In both instances, the research suffers from nonrandomization. The electrification and small-scale industry studies test for this bias by arguing that its existence can be discerned if the probability of receiving a service or benefiting from a project can be predicted on the basis of the characteristics presumably used to select users or beneficiaries. Specifying a logit model, the results were very poor, thus rejecting the notion of bias. It becomes then a matter of procedure to conduct the analysis with techniques that assume randomly drawn data (Herrin 1982; Pernia 1982). In the other studies, detailed descriptions are given on the manner of selecting sites or beneficiaries of projects. The results are then indicated to apply only to populations which satisfy selection criteria. For the impact analyses reviewed here, no adjustments were made on the findings to account for these possible biases. Although the studies recognize these possible problems, and specific responses were pursued, it appears that they are incomplete.

#### *ESIA/WID Micro Research: Summary*

Three basic points can be made to summarize the ESIA/WID micro research experience.

1. The individual impact studies did yield useful findings regarding the various effects contributed by a variety of projects. The insights increase the knowledge base upon which program and policy may in part depend. It is true that the studies hold for a given and selected site and that the results may not hold over a broader area or population. One cannot just take coefficients derived from these studies and argue that similar impacts can be expected elsewhere. Comparative conclusions have to be tempered by probability and site-specific considerations. However, policies often rely on experience with temporal or geographical dimensions and the research results provide a clue as to which additional studies may corroborate the implications they suggest.

2. The researchers adopted a limited array of data collection schemes, employed a variety of analytical techniques, and experimented with a series of indicators. The results have been mixed and on a net basis seem to suggest directions in terms of further research and program evaluation. An important outcome of the social science

research involvement in this case is the maintenance of scientific standards without substantial sacrifice of the relevant policy message. This does not mean that the studies were completed in a manner that represented packaging for policy use. In fact, one component of ESIA/WID, Research Utilization, was created precisely for the purpose of sifting through the studies for appropriate policy interpretations. Indeed, there was maximum flexibility in pursuing scientific scholarship in the studies.

3. The exercise and its results demonstrate that even if the research agenda were basically set out externally (in this instance, by government), there would be comfortable room for the research enterprise to be creative and advancing, not stifled by the need to provide clear solutions and categorical answers. One may argue that since competence is derived from the research community, it is to be expected that outcomes could not be directed. On the contrary, because of its comparative advantage as well as integrity, the result of any study is bound to be subject to significant influence to be consistent with predetermined directions.

### III. FROM RESEARCH TO APPLICATION

ESIA/WID (Micro) was primarily a research effort. This was necessary given the nature of the challenge which the component faced. However, a commitment to application was also present, and, as the research efforts progressed, the question of application loomed larger. For example, several assessments were made of existing monitoring and evaluation capacities. Those assessments sought to illuminate the existing orientations and capacities and what might be involved in mobilizing existing data reporting systems to support some of the ESIA/WID micro areas of concern. The application challenge consisted of building a bridge between where existing capacities were and where Micro research was. Two related developments within the ESIA/WID project environment suggested that one path to application, through training, was available.

In April 1980, the East-West Center Resource Systems Institute (RSI), in cooperation with the Ford Foundation and the National Statistical Office of Thailand, sponsored a workshop on "Territorial Indicators for Development." For RSI, the workshop was a product of two related Institute concerns: (1) understanding better the consequences of alternate strategies to develop and manage key resource

systems such as food and energy; and (2) enhancing capacities to translate improved understanding of those systems to practical policy and project measures. Participants at the meeting, from Thailand, Indonesia, Malaysia and the Philippines, strongly recommended that training strategies be identified and developed to improve the quality and utility of impact analysis in government agencies (Koppel, Schlegel and Wanglee 1980).

The NEDA-UNDP/IBRD project is focusing on improving the capacities of NEDA, which is the Philippine planning agency, to effectively function in the regions through improved planning and project development capabilities. By 1981, NEDA had been committed to substantially enhancing its capabilities at the central level (where projects are prioritized) and at the regional level (where projects are implemented) to effectively monitor and evaluate project implementation and impacts. Under the Regional Planning Assistance Project, a program of training and skill development in various aspects of Project development was already under way.

A collaborative planning process focusing on the design of a training program in project impact assessment that would build on the objectives and accomplishments of the ESIA/WID project, particularly the micro component, was initiated between RSI, ESIA/WID, and NEDA. The discussions continued for more than a year and represented an intensive effort to specify ends and identify and match means to those ends. Participants were identified from two audiences: (1) individuals who had served as research coordinators for ESIA/WID (Micro) principal investigators, and (2) individuals from NEDA's regional offices (NROs) who were scheduled to assume roles in a planned initiation of project monitoring offices within the NROs.

A relatively unique aspect of the program was that there were both in-country and out-of-country components. Normally, the major in-country component of a foreign training program is an "echo" seminar, an opportunity for participants to pass along what they learned abroad. In this case, participants spent several months implementing impact assessments they designed in Honolulu on projects they or their agencies selected for the exercise. After that experience, the curriculum provided in Honolulu was reinforced and reinterpreted as appropriate and new material introduced at a workshop held in Cebu City, Philippines. An echo function was present, but it was continuing and essentially activist, namely doing and

adapting, rather than passing along basically unmediated knowledge.

An aspect of the program that we believe made it relatively unique is that it was *not* proceeding on the assumption that a complete and codified body of knowledge exists and can be "passed along" relatively intact. It was and is our view that impact assessment is not at that stage of development. We opted for focusing on logics of evaluation and how those logics are reflected in methodological and analytic strategies and choices. Our main concern, however, was utilizability. We believe that flexibility firmly grounded in the logic of impact analysis is the best path to that end.

It is in that sense that the program sought to transmit techniques of project evaluation and impact analysis to government practitioners. The specific techniques chosen and the basic approach providing the context for those techniques were provided by the terms of reference of the ESIA/WID project itself. That project sought to go beyond conventional cost-benefit analyses and the counting of project outputs. It sought, instead, a broader analysis of the impacts which projects have on socioeconomic and resource systems within their influence area and how the dynamics of those systems, in turn, shape the actual direct and indirect effects of projects. In that regard, we should note that methods, indicators and designs used by ESIA/WID (Micro) were presented and discussed, but we were more interested in what could be done by the participants in their working environments than in the replicability of ESIA/WID (Micro) research. Replication was the concern of the Research Utilization Component. In this exercise, we took from micro component research that which looked most appropriate. That meant the *logic* of tracing the process of project impact.

The internship program was conceived to improve project development capabilities, with special emphasis on the *ex post* and ultimately *ex ante* use of project impact analyses and of a core set of individuals from national and regional offices of the Philippine government. Fourteen individuals, the product of a carefully designed and executed selection process, were identified for participation in the program (see Annex 1). NEDA's central office had two participants while the Regional NEDA offices had seven participants. Other agencies, represented by one participant each, were: the Commission on Population (Region VII Office), the Davao City Water District, the Ministry of Health (Region VI Office), the Ministry of Local Government, and the Philippine Port Authority (Region IX Office). Thus, 11 of the 14 participants were from the regions. The

participants were expected to initiate the formation of a critical mass of government personnel who can adequately understand, appreciate and actually conduct impact analyses of development projects as well as use impact analyses to improve project identification and design. Finally, it should be reemphasized that the program was developed in full cognizance of the evolving system of planning-budgeting linkages both at the national and regional levels in the Philippines. It is that evolving system in conjunction with the ESIA/WID and NEDA-UNDP/IBRD projects that constitutes the ultimate utilization context for the training program.

### *Training Design*

The internship program was designed along a sequence of five modules which are described below. Four of the modules were implemented in Honolulu by the East-West Center Resource Systems Institute (Koppel 1981). The fifth module was organized around a field application activity in the Philippines. The structure and pace of the four modules implemented in Honolulu was intensive, with considerable employment of individual and group exercises, a heavy reading load, and lectures from a staff that included resource persons from the United States, the Philippines, India, Malaysia, Pakistan and Singapore.

### *Training Modules*

The five modules were as follows:

1. *Evaluation, Monitoring and Impact Analysis: Overview Review and Prologue.*

The major objective of this module was to ensure that all the interns had an adequate and critical perspective on several major themes in impact analysis research. The themes were:

- a. Monitoring, Evaluation, and Explanation: What are these? How do they differ?
- b. Organizational Issues in Evaluation, Monitoring and Impact Analysis: What does it take to execute different kinds of evaluations?
- c. User issues. What are different end uses of evaluation, monitoring and impact analyses? How can ends and means in impact research be associated more constructively?

## *2. Special Issues in Evaluation Design and Analysis*

The objective of this module was to familiarize the interns with major issues and strategies in the logic of evaluation research design and analysis. The basic questions addressed by the module were: What do we need to know? What does that mean and what *doesn't* that mean in terms of data collection and analysis decisions? Topics covered include ideas about causality and attribution and how they relate to different types of evaluation: inference issues in evaluation and how those issues are reflected in approaches to construct, internal and external validity, and ultimately, research design and data analysis strategies. Special technical attention was given to cross-tabular data analysis with emphasis on the introduction of third variables to bivariate relationships. Introduction of third variables permits discussion of the existence and role of intervening, antecedent, and extraneous variables and provides an accessible way to measure the relative effects of different independent variables.

## *3. Special Issues in Indicator Research*

The objective of this module was to sensitize the interns to alternate ways of conceiving, measuring and interpreting selected crucial indicators. The areas of concern chosen for discussion were drawn directly from those defined by the ESIA/WID project. They were: income, income distribution, production/productivity, employment, population/fertility, environmental quality, energy, participation rates, health/nutrition, and education/literacy. It should be noted that each of these areas of concern is described in the Philippine National Development Plan as a major socioeconomic goal. The module took each area of concern and briefly but intensively explored and evaluated alternate approaches to conceptualization and measurement.

## *4. Planning an Impact Assessment of a Development Project*

The major objective of this module was to encourage the interns to think comprehensively about the process by which a project ultimately impacts critical areas of economic and social concern. Doing that implies an understanding of conceptual issues and "models" of intervention in socioeconomic systems. By asking the interns to design an impact assessment of a specific project, thought needs to be extended to how those concepts and "models" about



project impact analysis can be clarified through an empirical exercise. The interns were asked to design an impact analysis of a specific development project for implementation in approximately 6 weeks once they returned to the Philippines. Through an iterative process, the interns were assisted in conceptualizing how a specific project impacts and is impacted by the socioeconomic system in a defined project influence area. The proposals generated by the interns revealed their perception of the "model" defining the impact sequence from project to socioeconomic effects. The proposals also contained explicit hypotheses drawn from the "model," a strategy for making variables operational within the time and resource constraints faced, and an indication of precisely how data acquired would be analyzed to test hypotheses, identify relationships, and attribute impacts.

#### *5. Incorporating Impact Assessment into Agency Operations*

This module began with the implementation of the impact assessment proposal developed in module four. Technical assistance from the ESIA/WID project was provided to help interns over humps that might otherwise not be overcome and to ensure a continuation of agency support for the exercise. A workshop was held in Cebu approximately four months after the initiation of field research to review concepts, methods and strategies discussed in Honolulu in the light of the interns' field experience, possibly yielding some reinterpretation of preliminary conclusions drawn in Honolulu. Data types covered included secondary data (statistical reports, census materials), primary data (surveys conducted by the researchers), and ocular-experiential data (field visits, unstructured interviews). The importance of primary data and ocular-experiential data were recognized and reinforced in the Cebu portion of the program. In that portion, field exercises were the key, focused on key informant interviewing and rapid rural appraisal. Special attention was given also to: (1) *ex ante* uses of impact analysis data for project identification and prioritization, and (2) extensions of project impact analysis to regional development monitoring formats. In addition, new content was introduced to help accelerate the linkage of impact assessment capability to specific agency needs. Finally, attention was given to how the training and research experience of the interns could best be used as a foundation for extending impact assessment skills to other individuals and agencies.

#### IV. WHAT THE REPORTS MEAN

The reports should *not* be read as academic research pieces which offer comprehensive and sophisticated insights on project impacts. The reports *should* be read as examples of what can be done under existing staffing and financial conditions in terms of conceptualizing and verifying the logic of project impacts and translating that process of verification into project and policy relevant insights. The reports were prepared by interns who devoted part of their time during a period of approximately 8 weeks to field visits and data collection. Another portion of a month was spent in analysis and writing. The efforts are limited, but that is a recognition of how impact studies will probably be done in most cases. We accepted that as a reality and opportunity and sought to facilitate accomplishments under those conditions.

The reports reveal a wide range of data types, research designs, site and project familiarity, and clarity of results and recommendations. That variability is both opportunistic and promising. One strategy mechanically employed in all circumstances will be of little use and courts the danger of trivialization or even misuse. Impact assessment is insight that comes from dissecting the flow of outputs and effects, an operation that can be performed in more than one way. The reports do not cover the full range of ESIA/WID indicators. This should be interpreted as an accommodation to time and resources and a recognition that, for any project, some areas of impact concern only manifest themselves over a long period of time and only if a project's scale is substantial. However, this should not be taken to mean that significant and useful results do not follow. The water rates study, for example, generated a discussion that led to a revision of an urban water rate structure.

What are the main lessons which the training exercise provides? First, the program confirms that generalized project impact training is often too academic, rigid, and methodological. Too many blueprints are offered where there is not full consensus what the house should look like or even whether the same house is appropriate for most situations. More effort in *skill* development rather than knowledge development is needed, but through learning by immersing. The distinction between knowledge development and skill development is not mutually exclusive. It is a question of orientation and purpose, of emphasis. Immersion coupled with academic and method-

odological preparation and reflection helps support awareness that getting the facts is not, by itself, equivalent to understanding what is going on. The program which led to the reports in this issue of the *Journal* had exercises and immersion time, but probably the immersion should have started earlier.

Second, the planning for the training program proceeded from a premise we continue to believe is crucial: clear understanding by and participation of involved agencies in the content and purposes of training is essential. Ultimately, the success of staff development strategies such as this depends on utilization of trainees. It is through practice that *praxis*, the linking of understanding to real world problems, occurs and the learning curve of trainees continues to climb. All this cannot be left to serendipity.

Third, what is involved ultimately is increasing the capacity of Philippine government agencies to understand how project effects unravel and resonate in the world and how that understanding can be applied for project prioritization, development, and staffing. This means that a longer-run perspective on capacity development in impact analysis does not lead simply to improved correspondence between project objectives and accomplishments, but rather to improved ability by agencies to develop projects, anticipate their direct and indirect impacts, and recognize the interactions between implementing agency, project management, and the social, economic, and ecologic environment.

Notwithstanding the processual highlights conditioning the reports, their substance illustrates the broad context of the ESIA/WID (Micro) research and reflects the building up of underlying impact assessment capacities. As a whole, all reports display an exercise in logics that we argued earlier as a core activity in evaluation. Yet it is apparent that they vary in approaches to the problem and framework of measurement. What is common to all is a clear recognition that there is no specific formula for impact measurement and that each "logic" is unique to a project.

The reports also embody the awareness of being cautious in imputing causality to the results of the studies. In Fajardo's study of PHIVIDEC Industrial estates, he notes that even before the project a number of establishments had already been set up in the influence area. Impact, therefore, had to be adjusted for what was in fact taking place. The same is true with Barrios' analysis of a forest occupancy management program by taking into account the existing occupational structure of the affected populations. Both

these studies necessitated causality qualifications since they did not have actual comparison groups with which to discern palpable changes the projects may have caused.

Although the general thrust of the studies trace positive impacts and results that may come from the projects, negative impacts are not neglected. For example, Tumamos examines the adverse effects of the Cagayan de Oro Port Development project on labor employment especially on the changing distribution of skill and unskilled labor that the port affects. In fact one can view the negative impact on the displacement of unskilled labor with the positive impetus to the use of skilled labor.

On the other hand, it is interesting to follow how a degree of project effect would similarly impinge on potential impact. In Dumagay's analysis of a communal irrigation system, farm production and productivity are negatively affected by the distance of a farm from the irrigation water canal.

The methodologies adopted by the studies are mixed but cognizant of particular merits and weaknesses. In Gil's analysis of the rate policy of Davao City Water District, there is awareness of potential problems with using three residential districts as indicating low, middle, and high income class areas. Yet this is necessary in order to understand possible impacts of alternative rate structures. More quantitative approaches are taken by Perez in his analysis of small-scale irrigation, Garcia's study of rural roads, and Valenciano's investigation of a multiple cropping project. Even the more narrative structure of Conti's report on a Bagong Lipunan Sites and Services (BLISS) project suggests useful insights and lessons. All, however, are short of the high power sophistication (in methodology and analysis) one usually finds in more academic studies. But as noted above, these reports are not meant to be indicators of sophistication.

In the same vein, the studies reported in this volume provide illustrations of the use of existing national data (e.g., the reports of Barrios and Fajardo) to give a perspective of impact. The use of agency data is an opportunity evident in the results of Gil's study, Garcia's analysis of rural road impacts, and Conti's report. A number of reports eventually conducted small surveys or primary data gathering to complement the sparse information base. The variety of data sources relied on in the reports gives credence to the constraints that bind comprehensive impact assessments at the micro level (and discussed extensively in the ESIA/WID (Micro)

component) but at the same time exemplifies efforts to exhaust the available data base.

If the development projects studied in the core research analyses of the micro components of ESIA/WID were carefully selected to avoid external and internal biases, project study selection in the reports would likewise be carefully pursued. Initial discussions in Honolulu when proposals were presented highlighted the importance of understanding how to isolate impact. Thus the reports incorporate the consciousness of care in the study — site selection. When compounding aspects are prevalent (as in Fajardo's study), several qualifications are made before coming to concrete conclusions regarding impact.

As mechanisms for improving impact and evaluation systems and as actual analytical results, the studies that follow lead to specific contributions to the enrichment of the traditional project development cycle in planning. One is that attention given to both intended and unintended project effects is an improvement over the common practice of focusing on direct impacts, e.g. agricultural projects on agricultural effects, education on education indicators, and so on. This may not necessarily lead to changes in the usual calculations of profitability or benefit-cost ratios but would certainly increase awareness in judging quantitative magnitudes.

Another is that specific policy and management implications, if not directions, are derivable from the research results. These range from the rate of water flow and distribution in irrigation canals in order to balance production impacts to changes in tariff structure of water systems in urban areas. When specific directions are incorporated into project development, disparities between assumed benefits and costs and actual values will narrow.

Finally, while there are no patented formulas for impact assessment unlike in a regular project development process, institutionalizing its practice in a planning system obviously leads to a critical mass needed for completing a productive link between research and the planning cycle. The reports included in this *Journal* constitute a beginning of that link.

## Annex 1

## IMPACT ASSESSMENT INTERNSHIP PROGRAM

## List of Participants

Miss Mercedita C. Agcaoili  
Senior Economic Development  
Specialist  
Agriculture Staff  
Programs and Projects Office  
National Economic and Development  
Authority

Mr. Herbert T. Barrios  
Economic Development Specialist  
National Economic and Development  
Authority  
Region III  
San Fernando, Pampanga

Miss Filomena Conti  
Economic Development Researcher  
National Economic and Development  
Authority  
Region XI  
Davao City

Miss Thelma M. Cruz  
Economic Development Specialist  
Social Services Staff  
Programs and Projects Office  
National Economic and Development  
Authority

Mr. Ramon Perez  
Economic Development Specialist  
National Economic and Development  
Authority  
Region IX  
Zamboanga City

Mr. Nicholas B. Rivas, Jr.  
Economic Development Specialist  
Infrastructure Sector  
National Economic and Development  
Authority  
Region VI  
Iloilo City

Mr. Diamadel Dumagay  
Economic Development Specialist  
National Economic and Development  
Authority  
Region XII  
Cotabato City

Mr. Fernando C. Fajardo  
Senior Economic Development  
Specialist  
National Economic and Development  
Authority  
Region X  
Cagayan de Oro City

Mrs. Elma de Vera Garcia  
Senior Economist  
Rural Roads Program  
Ministry of Local Government

Mr. Danilo L. Gil  
Chief, Commercial Division  
Davao City Water District  
Davao City

Mrs. Concepcion N. Mancilla  
 Planning Officer II  
 Regional Health Office  
 Region VI  
 Ministry of Health  
 Iloilo City

Miss Sandra Manuel  
 Research Evaluation Coordinator  
 Region VII  
 Commission on Population  
 Cebu City

Miss Beda Tumamos  
 Junior Statistician  
 Philippine Ports Authority  
 Cagayan de Oro Port Management Unit  
 Cagayan de Oro City

Mr. Alexander Q. Valenciano  
 Economic Development Specialist  
 National Economic and Development  
 Authority  
 Region VI  
 Iloilo City

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