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9. ABSTRACT

Since both recipients and donors have many reasons for wanting to assess performance systematically, this report describes the steps A.I.D. has taken to improve and refine the criteria for assessing both commitment and progress. There is increased emphasis on distributive aspects of economic development by focusing socioeconomic analyses on target groups such as the small farmer and the rural poor in preparing development assistance programs, sector assessments and analyses, and project papers. Section 102(d) added to the Foreign Assistance Act in 1975 requires that "the President shall establish appropriate criteria to assess the commitment and progress of countries" towards the objectives for development assistance. These objectives emphasize participation by the poor and increased access for them to employment and income opportunities. These criteria are to be selected according to their value in assessing the efforts of countries to: increase agricultural productivity per unit of land; reduce infant mortality; control population growth; promote greater equality of income distribution; and reduce rates of unemployment and underemployment. The most important criteria now used for allocating development assistance is the overall poverty level. The host country's commitment and progress also play an important part. Commitment and progress are twin aspects of a country's performance; development progress provides a measure of the effectiveness of commitment. Commitment is reflected by the policy and program actions a country takes. Field missions will be asked to provide more information on host country commitment and progress as part of A.I.D.'s annual planning, programming and budgeting procedures. The last half of the report is devoted to the annexes including a list of bilateral projects with progress measurement aspects, a proposed program for developing criteria and statistics, issues in measuring development performance, and an

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inventory of selected centrally-managed activities contributing to development of progress criteria.

SOCIO-ECONOMIC PERFORMANCE CRITERIA FOR DEVELOPMENT

A Report on the Assessment of Commitment and Progress
Submitted by the U.S. Agency for International Development
Pursuant to Section 102(d) of the Foreign Assistance Act

February 1977

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ANNEXES

SUMMARY

To assure that development assistance is increasingly concentrated in "countries which will make effective use of such assistance to help the poor to a better life", Section 102(d) calls for:

-- establishment of "appropriate criteria to assess the commitment and progress of countries" in meeting key development objectives as summarized in Section 102(c) (aimed at increasing substantially the participation of the poor in development);

-- encouraging the adoption of similar criteria by international development organizations in which the U.S. participates; and

-- selecting these criteria according to their value in assessing the efforts of countries to:

** increase agricultural productivity per unit of land;

** reduce infant mortality;

** control population growth;

** promote greater equality of income distribution;

** reduce rates of unemployment and underemployment.

Several important criteria are now used for allocating development assistance, including those found in the Foreign Assistance Act.

-- The overall poverty level is perhaps the most important factor.

-- Host country commitment and progress also play important roles in A.I.D.'s decisions.

-- Additional criteria, both quantitative and qualitative, are discussed in the detailed report below.

A.I.D. is taking steps to improve and refine criteria for assessing both commitment and progress. While it is important to distinguish between the concepts of commitment and progress, it is also important to keep in mind the close relationship between the two. A government's commitment as reflected by its programs and policies can provide a current indication of future progress. But development progress in the long run provides a measure of the effectiveness of commitment. Thus, commitment and progress may be viewed as twin aspects of a country's performance.

-- It is A.I.D.'s judgment that development and application of performance criteria are likely to have true long-run effects in the donor community and within the host countries only if the criteria are developed collaboratively and are truly beneficial for the host countries' own planning and programs.

A.I.D. has commissioned outside experts to prepare studies on criteria for assessing commitment and progress and to inventory basic data sources.

-- These studies provide elaborated or refined versions of the five basic "indicators" listed in Section 102(d) and give concrete alternatives for discussions with other donors, A.I.D. country missions, and host governments.

-- The conceptual materials in these studies are particularly important elements of the collaborative strategy we intend

to pursue with recipients and other donors in developing means to analyze and apply socio-economic performance criteria.

A country's commitment is reflected by the policy and program actions it takes. The assessment of a country's commitment to broadly participatory development may require:

-- first, a clear statement of its development strategy, including its priorities at the subsector level;

-- second, quantitative measures over time of its expenditures for activities such as agricultural development, rural health, family planning, and education programs;

-- third, measures over time of the country's "self-help" efforts to raise and allocate development resources domestically, including policies that affect private savings as well as credit;

-- fourth, information on major indirect economic and institutional policies, e.g., those affecting exchange and interest rates, tariffs, quotas, taxes, subsidies, wages, land tenure security;

-- finally assessment of commitment also requires quantitative and qualitative information on the constraints or non-controllable determinants of performance that inhibit a government from taking certain policy actions or that inhibit these actions from having their intended impacts:

** at one level these include short-term natural phenomena like flooding, drought and earthquakes;

** at another, they include externally caused economic fluctuations (e.g., an increase in oil prices);

** and commitment is also shaped by socio-cultural attitudes and practices, and political opposition from interest groups.

In order to improve AID's ability to assess country performance, field missions in early 1977 will be asked to provide more information on host country commitment and progress as part of the Agency's annual planning, programming, and budgeting procedures. A continuing refinement of performance criteria in future years will allow gradual strengthening, through the use of objective statistics, of our capacity to make informed judgments, particularly as collaboration with recipients and other donors yields concrete agreement. But quantitative criteria will always be support, rather than replacements, for informed judgments in our allocation decisions.

Implementation of these steps may require new staffing patterns for particular USAID country missions or AID/W offices, in order to strengthen the Agency's analytical capacity in selected sectors and disciplines.

Assessment of development progress must be judged against commitment and constraints; it also requires measurement of indicators of changes in the well-being of the poor in LDCs.

-- Up-to-date and reliable data on such measures of well-being as changes in infant mortality, real family income, employment, agricultural productivity and population growth are strikingly deficient in most LDCs.

---Our research on data sources has further documented troublesome discrepancies in some internationally-published, widely-accepted statistics for key variables.

-- It is the A.I.D. judgment, supported by independent consultant studies, U.S. Census reports, and reports of U.N. agencies, that existing LDC data do not allow meaningful worldwide comparative application of statistical socio-economic performance criteria for the time being, that an allocation process based strictly on quantitative criteria will not be feasible even after better data are widely available, and that a persuasive dialogue with other international donors, as called for in the legislation, requires much better conceptual and statistical bases than hitherto have been available to the international community.

In view of the conceptual and statistical needs for devising adequate measures of progress, AID has developed a long-run program for developing criteria collaboratively with host countries and for strengthening statistics and research on socio-economic performance.

-- The Agency stands ready to assist interested recipient countries improve their own institutional capacities in this area.

-- An important component of the A.I.D. program is an expanded capacity to give assistance for developing amd executing household sample surveys.

-- This activity will necessarily be longer run in nature but we think improvement in basic data sources is already appropriate for some countries and can be started now.

Consultations with other donors on assessment of commitment and progress have already begun.

-- Discussions have been held with staff of the IBRD, the UN Statistical Office, other UN agencies and other bilateral donors.

-- These discussions have focussed on the desirability of multi-donor support of efforts to improve LDC institutional capacity for measuring development progress.

-- While we do not believe we are yet in a position to encourage the adoption by international organizations of specific assessment criteria, we have made these organizations aware of our efforts. We shall continue actively to seek their advice and agreement as we further refine specific criteria.

I. Introduction

Development "performance" encompasses both the efforts recipient countries make toward certain socio-economic goals and their actual success in attaining those goals. Or, to use the terminology we follow in this report, "commitment" to development and subsequent development "progress" are twin aspects of recipients' performance.

Both recipients and donors have a number of reasons for wanting to assess performance systematically, for example:

(1) to help the developing countries themselves identify constraints and pinpoint desirable changes in policies, programs, and projects;

(2) to help donors determine ways to improve effectiveness of assistance and increase its complementarity with recipient efforts;

(3) to assist in selection of countries and activity areas that need assistance most and are most likely to yield successes.

The perceived need for development performance criteria among both donor and recipient countries is not new, by any means. During the 1960's there grew a large literature of academic studies and official documents on the topic. 1/ This earlier literature emphasized statistical analysis of conventional macro-economic and public finance variables--GNP per capita, balance of payments, tax and savings ratios, and the like. But in recent years both donors' and recipients' interests

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1/ The literature is summarized in Performance Compendium - Consolidated Results of Analytical Work on Economic and Social Performance of Developing Countries (Organization for Economic Co-Operation and Development Assistance Directorate, Paris, 1973).

in such matters as income distribution, population growth, human resources development and basic human needs have clearly grown stronger and in the process have strengthened demands for performance data going beyond conventional macro-economic and taxation variables. AID in particular has put increased emphasis on distributive aspects of economic development by focussing socio-economic analyses on such target groups as the small farmer and the rural poor in preparing "Development Assistance Programs" (DAPs), sector assessments and analyses, and project papers. For reasons set forth later in this report, the Agency has not undertaken a systematic effort to formulate uniform or cross-country socio-economic performance criteria expressed in quantifiable or statistical form. We have, on the other hand, through the DAP and project systems, the central research program, and implementation of AID's New Directions strategy, developed and frequently applied socio-economic criteria, both statistical and "qualitative", on a case-by-case and country-by-country basis.

II. AID's New Requirements

Recent amendments to the Foreign Assistance Act, especially to Section 102, aim to strengthen the development and use of performance criteria. Specifically, Section 102(d) was added to the FAA in December 1975, requiring that "the President shall establish appropriate criteria to assess the commitment and progress of countries" towards the objectives for development assistance under Chapter 1 of the FAA. These objectives, given with special clarity in Section 102(c), emphasize "participation" by the poor and increased access for them to employment and income opportunities--what is often called a participatory development strategy. 2/

A broad consensus has emerged in recent years among developing countries, Western bilateral donors, and the multinational agencies that a participatory development strategy cannot ignore such crucial factors as the appropriate technology and economic incentives needed to increase productivity of small-farm agriculture; the potentially critical cause-effect links among elements like women's employment and education opportunities, infant/child mortality, and population growth; and the simultaneous distinction and relationship between overall national economic growth and more satisfactory income distribution to the poor.

2/ The specific language of Section 102(c) is, "Assistance ... should be used ... to help countries solve development problems in accordance with a strategy that aims to increase substantially the participation of the poor. Accordingly, greatest emphasis shall be placed on countries and activities which effectively involve the poor in development, by expanding their access to the economy through services and institutions at the local level, increasing labor-intensive production, spreading productive investment and services out from major cities to small towns, and outlying rural areas and otherwise providing opportunities for the poor to better their lives through their own effort".

It stands to reason, we believe, that recipient and donor governments truly committed to participatory strategies should in the future improve their understanding of the determinants of such factors as income distribution, employment, small-farm productivity, infant/child health, and population growth, in order to relate project and program design more effectively to income opportunities for the poor; and that--going beyond mere "commitment"--they should be able to demonstrate statistically within a reasonable number of years that progress has occurred in achieving the economic and demographic corollaries and objectives of participatory development.

Agreement among recipients and various bilateral and multilateral donors as to these objectives and their appropriate measures and corollaries will be difficult to obtain, although we believe the five broad categories of socio-economic variables in Section 102(d) are a feasible and useful indicator list. In its list of the five categories, the legislation requires, "In establishing such criteria the President shall specifically take into account their value in assessing the efforts of countries to--

1. increase agricultural productivity per unit of land through small farm labor-intensive agriculture;
2. reduce infant mortality;
3. control population growth;
4. promote greater equality of income distribution...;
5. reduce rates of unemployment and underemployment".

The "efforts" of recipients and donors to improve such elements as small-farm productivity are of course laws and socio-economic policies, action programs, and discrete projects, which are generally the "instrumental" or "controllable" determinants of development progress. But a fair and sound assessment of efforts requires simultaneous analysis of the "external" or "non-controllable" determinants of the particular socio-economic changes (see Section VII below). This process requires a variety of both qualitative and statistical information on the determinants and on the actual "change indicators" or "outcome variables". It is AID's position that "effort" or commitment assessment/measurement can and should be pursued as an essential component of an overall long-run approach to "outcome" or progress assessment/measurement, in which case we believe the undertaking can be of substantial benefit to both recipients and donors.

The legislative history of Section 102(d) does not spell out how the criteria are to be developed. Therefore, in planning how to implement the Section we have not concentrated exclusively on performance at the "national level" in host countries as opposed to local data or the impact of specific projects; nor have we developed rules on how to relate "commitment" to "progress" and on when to deal with non-statistical performance indicators in place of statistical criteria. In large part these and similar issues must be addressed case-by-case and can best be worked out empirically, that is, as the result of accumulated "real world" Agency experience. Such a step-by-step approach is particularly appropriate in socio-economic performance measurement because:

(a) economic circumstances among developing countries differ widely, and as a result, their capacities to demonstrate progress with a

particular indicator may not always correlate reliably with other important indicators; thus, any single indicator or cluster of indicators may have quite a different relative significance from country to country depending on any number of important economic circumstances;

(b) countries differ widely in how much more we can learn about their needs and prospects from new indicator data; and

(c) the cultural and political sensitivities to matters such as statistics on family planning or income distribution vary greatly, and often in such unpredictable ways, from country to country.

We think it is clear that AID and other donors cannot apply a blanket, uniform set of socio-economic performance criteria (statistical or otherwise) for all recipient countries. In fact we shall in future work explore means to add flexibility by, for example, expanding the basic list of five "102(d) variables" to include indicators for education and other sectors important for AID and host countries' programs. It has also become clear to AID that specific criteria and means for measuring or validating them cannot simply be imposed upon recipients by donors, if the criteria are to have any real or lasting meaning. For this reason, the activities AID is pursuing in fulfillment of Section 102(d) involve joint collaborative development of criteria with recipient countries, as is explained below in Section IX and Annex C. (The collaborative approach we are proposing there for development of criteria and statistics allows inclusion of information not only on the five specific indicators of 102(d) and their determinants, but also on various other goals of interest to host countries and AID such as the lists in Sections 102(b) and 102(c) of the Foreign Assistance Act.)

III. The Main Dilemma of Performance Criteria: Success versus Need

The proponents of development performance criteria, chiefly in the donor nations, have often seemed divided into two broad camps: those who would use statistics on economic growth, income distribution, infant mortality, and human fertility to single out and reward the "success stories" and those who would use essentially the same types of measures to identify countries with the "greatest need" for assistance.[3/]

Both groups would increase the relative aid shares of the groups they perceive as the most deserving, but the two separate approaches to performance criteria can give conflicting signals on allocations. The reason seems clear: the poorest nations have been poor and remain so precisely because they have not made and are not making sufficient "progress". Proponents of the pure "needs" approach can read a set of statistics as calling for more outside help. Members of the other camp can cite exactly the same evidence to argue that due either to uncontrollable environmental conditions, inappropriate economic policies, or lack of "self help," substantial progress is not likely to occur in particular countries as a result of aid, so that the foreign resources should be shifted to other countries where they will "really make a difference." Put in these terms, or what might be called "the measurement of progress without regard to causes," the two approaches can be mutually exclusive

3/ This division is, to be sure, seldom absolute. Proponents of the "success approach" normally do not overlook needs altogether, and proponents of the "needs approach" of course appreciate the desirability of allocating aid to highly successful users. Nonetheless, the tendency to favor one approach or the other characterizes much past thinking on performance criteria, and the division into two groups conveys the essence of the troublesome dilemma.

and irreconcilable.

Resolution of the dilemma depends, in our view, upon developing improved understandings of cause-effect relationships among development progress (including varying time lags), general environmental and background conditions, and host and donor governments' actions. Allocation decisions about aid should be based simultaneously upon information about progress per se and information about the determinants of that progress (or lack thereof). Therefore the AID program for developing and strengthening the use of progress and commitment criteria, as called for in Section 102(d), has as an integral part the improvement of basic statistics on and the analysis of determinants of income distribution, employment, agricultural productivity, population growth, and infant mortality in low-income countries.

IV. Current AID Allocation Procedures and Criteria

AID's budget allocation system is based on a country-by-country and project-by-project analysis of activities proposed by field missions and reviewed by operating bureaus in Washington. (The process is described later in this section.) The actual Development Assistance funding decisions for individual country programs depend on a variety of interacting factors and not on any simply defined quantitative or qualitative criteria. Certain important considerations do, however, have special significance in the allocation process:

(a) emphasis upon increasing assistance to the poorer LDCs;

(b) evidence of support from the host country government for programs aimed at meeting the basic needs of the poor majority of its population;

(c) demonstrated need for, and capacity to absorb, programs in AID's concentration sectors;

(d) availability of a sufficient number of effective projects consistent with the emphases of AID's legislation;

(e) access by recipient countries to alternative sources of funding; and

(f) broad foreign policy considerations.

The single most important factor is AID's emphasis on helping the poorest countries. Because of the scarcity of concessional funds and the criterion of relative need, AID has stressed allocation of development assistance to lower income countries, particularly the least developed.

For instance, in FY 1977 over 70% of AID's bilateral development assistance program will be allocated to countries with per capita income under $350.

The level of development is important because the more developed a country, the better able it is to take measures on its own behalf to address needs of its poor; while middle income LDCs may continue to need inflows of external capital and technology, they are increasingly able to obtain them through private channels. Partly on this basis, AID has in the past several years phased out, or is about to do so, in several middle income countries--Argentina, Chile, Mexico, Uruguay, Venezuela, Brazil, Turkey, Colombia, Ecuador, and Korea. We do not believe all aid should be concentrated on the poorest LDCs, for important development and foreign policy interests may be served by continued relationships with middle income countries. To a large degree, however, these ties can be maintained by instruments other than our traditional program.

Country commitment is a key factor in allocation. The difficulties in assessing commitment, especially for the objectives of participatory development, are discussed below; but USAID Mission proposals--both in terms of broad strategy and individual projects--have long identified country self-help efforts as an important part of the program development process. Quantitative self-help indicators AID has employed include changes in (a) ratios of tax revenues and private savings to GNP and (b) government budget and expenditure allocations. (Qualitative measures have included various administrative reforms to increase the tax base, for example, and broad policy changes.) It is important, however,

to note problems deriving from criteria that give conflicting signals: poor countries with greatest needs often also show least progress even though they also may have strong commitments, which are often hard to assess (see Sections III and V).

Needs for assistance to sectors like agriculture and rural development, health and family planning, and education are usually highest in the poorest countries. These sectors are AID's concentration areas. We seek to provide maximum support for effective projects there. But in addition to host government commitment to such programs, there must be capacity to absorb increased assistance--for example, capacity in the form of physical infrastructure, or trained personnel to implenent projects.

Closely related to absorptive capacity is availability of an adequate number of effective projects addressing needs of the poor. Individual country amounts which sometimes may be set ideally at higher levels, are reduced if specific projects do not measure up to acceptable standards and good alternatives are not available. This technical criterion is often in conflict with allocation based on need, since greater under-development is normally associated with low capacity to design and implement projects effectively. For this reason AID uses considerable resources to assist LDCs develop technically sound projects.

In determining U.S. aid levels, activities of other donors are important. AID coordinates programs wherever possible with other bilateral and multilateral donors, both on overall program size and on individual projects. This cooperation is especially important since the U.S. share of assistance in many countries has diminished in recent years

while others have taken a larger share of the growing aid burden. The roles of other donors have been significant for example in the relative allocation between Africa and Latin America. In the past, the AID program has been larger in Latin America than in Africa; but total assistance from the countries of the Development Assistance Committee (DAC) has been almost twice as high to Africa as Latin America (The higher levels for Latin America also reflect (a) better absorptive capacity and (b) hemispheric political relations, an important part of the last factor on the list--foreign policy considerations.)

The decision to provide or withhold aid is a foreign policy matter. Such considerations have occasionally been important both in raising levels for some countries and in lowering them--or even completely eliminating programs (for example, Uganda)--for others. Broad foreign policy also influences overall regional allocations, as the Latin American example illustrates. A foreign policy decision has been made to attempt to keep Latin America aid at current levels, but at the same time there has been a distinct policy of increasingly concentrating help there on the region's poorer countries. Moreover, enhanced awareness of Africa's needs and international importance has brought about significant efforts to program more resources for that entire continent.

Many other factors are also at work. For example, funding levels in immediately preceding periods may be important simply because it is normally a slow process, especially in the poorest countries, to increase program size significantly: AID Missions have limited capacities for rapid growth, good project design is a difficult and time consuming process, and major program increases often strain recipients' abilities

to absorb more aid. A marked shift in funding levels may also have undesirable foreign policy repercussions in neighboring countries.

Elements considered in special cases include the needs caused by natural disasters such as earthquakes and floods. In these cases additional requirements for assistance may arise, beyond simply relief operations, for programs to bolster a disrupted economy. Such events recently have led to special allocations outside normal AID processes, for example, in Bangladesh, Guatemala, and the Philippines.

The Allocation Process

The allocation process is generally based on the analytical framework provided by each recipient's Development Assistance Program(DAP) document. The DAP analyzes a country's long-term development problems, both in a broad socio-economic context and in particular sectors. Aspects of overall employment-unemployment problems and income distribution as well as agricultural development, population growth, health status, and education generally are addressed by each USAID Mission in the document. The DAP also provides basic analysis of the host country's own efforts to address problems and its commitment to particular policies and programs, as well as recommendations on broad areas of Agency programming that most effectively promote its development objectives.

The DAP is expected to have broad validity for three to five years and is revised when significant changes in circumstances indicate the desirability of new analysis. The annual cycle of AID country programming uses each country DAP as a background to recommendations by country Missions for specific projects to be carried out that year.

The recommended projects then serve as the basis for each Mission's annual budget request submitted by the Ambassador. (Mission are not given suggested budget levels but submit whatever they think appropriate, based on factors noted above as seen from their vantage points--including their own capacities to manage programs.)

The country Annual Budget Submissions (ABS) are reviewed by the geographic bureaus with participation of central bureaus. Preliminary descriptions of new activities are reviewed at this stage to determine if they meet Agency policy emphases; some projects are rejected here. The Geographic Bureaus then adjust country levels on the basis of their respective Missions' submissions and their own reviews of factors described above. Revised country levels are next reviewed centrally by the Bureau for Program and Policy Coordination (PPC) to ensure consistency with broad policy guidelines (for example, stress on poorer countries, program directions consistent with the "New Directions" legislation, and appropriate Agency allocations among various sector accounts), and balance between the geographical and central programs(for example, centrally-funded science and technology and other central research activities).

The Administrator then decides on competing claims. Usually two levels are established: one to meet the "mark" set by the Office of Management and Budget and in most cases, a higher one to represent the amount AID proposes for essential development assistance needs. The Administrator's decisions on allocations are then submitted for approval to the Secretary of State (with concurrence of the regional Assistant Secretaries, whose staffs participate actively in the review) and

transmitted to OMB and the President.

After reviews and appeals, there are reallocations based on Presidential decisions; however, there are serious efforts to follow the general emphasis described above. Subsequent modifications result from Congressional actions. Finally, adjustments occur later in country allocations because activities originally proposed must be eliminated, changed, or postponed for a variety of reasons like (a) unexpected developments outside control of recipients or AID and (b) adverse technical or economic findings in the lengthy project development and review process. (Often more than two years pass between the time a project is first proposed and the time it is funded.) The final budget actually committed in any fiscal year will reflect all these factors.

V. Fundamental Measurement Issues

A. Development Performance Criteria in the Past

As noted above (Section I), there is a large previous literature on performance measurement as related to economic development. The Development Assistance Directorate of the Organization for Economic Cooperation and Development listed a bibliography of ninety-nine items in 1973, but they found only four items significantly relevant to education, with none listed as relevant to health or small-farm productivity. However, twelve items were listed as relevant for performance with respect to employment. The bulk of the ninety-nine items dealt with taxation, savings, investment, growth rate of GNP, and international trade/finance. 4/ Even for the category of employment--with a relatively large number of studies available for citation--apparently there has been no systematic significant donor use of labor statistics for allocation decisions. 5/

The donors' experience with respect to actual use of performance criteria (non-statistical as well as quantitative) has been mixed at best, even for conventional macroeconomic and financial variables.

4/ Performance Compendium, passim.

5/ The situation with respect to employment criteria is not really surprising, given the well-documented conceptual flaws and scarcities of LDC labor statistics. See for example the excellent monograph by David Turnham, The Employment Problem in Developing Countries, (Paris: OECD Development Centre, 1971). Additional problems with LDC employment data are noted in William P. McGreevey, "Issues in Measuring Development Performance", Annex D below; and in Henry Bruton, Employment Growth as an Indicator of Poverty Alleviation, available from the Agency for International Development.

AID has not used such indicators systematically in its decisions on allocations of aid, although they have often played a role. Apart from allocation per se, AID like some other donors has used performance indicators in efforts to bring about policy changes in LDCs, with some success. LDC recipients have also used these macro indicators as one of many tools and/or factors in determining their economic policies. This modest record makes us think new criteria and new statistics on "socio-economic" performance will be only one of the many tools to help recipients and donors make better allocation decisions.

B. The Critical Need for Statistics and Analyses

Establishment of objective, measurable development performance criteria for low-income countries requires, among other things, a reliable statistical base to allow comparisons through time for individual countries and at points in time across many countries. Without such data, we think defensible statistical or quantitative norms can neither be developed nor applied to today's low income countries. The current lack of reliable data is discussed below.

Once reliable data are available both to measure the level of development performance and to track statistically its possible determinants(and hindrances), interpretation will of course raise difficult technical problems. But fundamentally the technical problems are not likely to be too different from the typical problems social science research almost always encounters in low-income countries. Indeed, problems of statistical correlation and "causation" (or "attribution")

will probably be about the same with impact measurement as with any statistical research in the social sciences. Statisticians have developed "multivariate" techniques for filtering out the influences of extraneous factors, so that the unique impact of some particular "independent variable" can be isolated. Whether such techniques can produce useful impact measurements may depend less upon the technical state of the arts than upon the time and money available to gather and refine primary data and analyze them.

For example, as a practical matter many times it will be impossible to isolate the impact of a rural development project upon the intended beneficiaries' incomes over the span of a few years simply because the year-to-year income improvements are statistically small relative to the random fluctuations introduced by factors like weather--and there is not enough time, or money, or both, to broaden the sample or set up control groups.

Other serious problems, which are generic for LDC social science fieldwork rather than unique to performance measurement, include reluctance of subjects to reveal sensitive information like income, reliability of interviewers and other non-professional staff, inaccurate recall by subjects on matters long past, the short attention spans of subjects when confronted with "overloaded" questionnaires, and the overall cultural difficulties that social scientists and educated interviewers have when they deal with largely illiterate peasants.

Such problems are all serious and complicate many, if not most, attempts at socio-economic performance measurement. However, it must be stressed that survey statisticians and social science analysts constantly

face and have developed many ways to deal with such problems. These problems will hinder performance measurement, but they should not in general rule it out or render it entirely impractical.

C. The General Inadequacy of Present Data

There seems to be little or no disagreement among experts that while there has been significant progress in LDC statistics, the current data sources for low income countries do not permit meaningful systematic cross-country comparisons to establish performance norms based on "social indicators" like income distribution, employment, fertility, and mortality. Furthermore, even though some reliable data are now becoming available to measure the determinants of progress in these areas for several important low income areas, there is still a striking absence of both "progress data" and "determinants data" for the poorest countries, especially in Africa. Yet, such very poor countries are increasingly the beneficiaries of many donors' assistance. For example, a United Nations group, which has compiled a data bank with dozens of social indicators for most countries of more than 1,000,000 people, felt that recent infant mortality statistics were reliable enough to deserve reporting only for six sub-Saharan African countries (out of thirty-one surveyed). 6/ A similar story can be told time and

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6/ Furthermore, none of these countries had reliable data from the previous decade upon which to base a "progress comparison" -- although four different countries had the earlier data without recent statistics. Research Data Bank of Development Indicators, Volume III, Report No. 76/3 (United Nations Research Institute for Social Development, Geneva, 1976).

again for other indicators. 7/ The same United Nations group has found so many problems of inaccuracy, non-comparability of concepts and unavailability with regard to statistics on land tenure, employment, and income distribution, that they have decided not to report data on these items for the time being.8/

Thus, the situation today seems to have improved little from that of a few years ago, when the OECD reported, "Performance analysis with respect to social sectors [population, health, education, employment, etc.] is made especially difficult by the lack of usable statistics. There is hence a need to rely mainly upon qualitative policy indicators in assessing the developing countries' performance." 9/

D. Special Problems in Assessing Commitment

While it is important to distinguish between the concepts of commitment and progress, it is also important to keep in mind the close relationship between them. A government's commitment as reflected in current programs and policies can provide indicators of future progress. But development progress in the long run provides a measure of the effectiveness of commitment. In other words, commitment is one of the potential determinants of progress. Wherever feasible, judgment about

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7/ AID has commissioned five separate monographs to document the concepts used and available data in recipient countries to measure income distribution, employment and unemployment, agricultural productivity, population growth, and infant mortality. See Section VI below.

8/ UNRISD, Research Data Bank, Vol. I, p. i.

9/ Performance Compendium, p. 80.

the impact of commitment upon progress should be made in the light of systematic knowledge about other ("non-controllable") determinants.

Proper assessment of a government's commitment to participatory development may require, among other things, (1) a clear statement of its development strategy, including priorities at the subsector level; (2) quantitiative measures over time of expenditures for activities such as agricultural research, rural health, family planning, and education; (3) measures of "self-help" efforts to raise and allocate development resources domestically, including policies that affect private savings as well as credit; (4) information on major indirect economic and institutional policies, like those affecting exchange and interest rates, tariffs, quotas, taxes, subsidies, wages, and land tenure security; and (5) information on constraints that inhibit a government from taking certain policy actions or that keep these actions from having the intended impacts: natural disasters, foreign economic fluctuations, socio-cultural attitudes and practices, and political opposition from interest groups.

Broad expenditure shares can be useful partial indicators of a government's sectoral development priorities, but taken alone they may be quite misleading. For example, the following sorts of matters need to be taken up simultaneously with broad budgetary data if we are to analyze commitment judiciously: (a) specific investment projects and current expenditures; (b) subsidies, activities of government agencies normally considered outside the sector of interest, and other "hidden" fiscal activities; (c) international trade, exchange rate, and domestic taxation policies impacting a sector; and (d) the government's revenue-expenditure

cycle, as it affects for example the differences among planning commission recommendations, legally authorized budgets, and actual expenditures. It is also important to note that trends in particular sectoral shares may be more important in many cases than specific annual expenditures -- introducing additionally the problems of selecting appropriate base years for comparisons and choosing data whose definitions and concepts are consistent from year to year.

In setting forth an analysis of budgetary data, it is important to stress that certain core functions normally have a first lien on any government's revenue: maintenance of public order domestically, national defense, enforcement of contracts, prevention of epidemics, and provision of capital infrastructure like roads and dams. Without such expenditures, specific sectoral activities in agriculture,education, family planning, and so forth would no doubt often be meaningless. Yet as crucial as these "overhead costs" are to specific "developmental" sectors, there simply may be no realistic way to allocate their costs and benefits sector by sector.

The most obvious information sources on LDC government expenditures are the numerous officially published documents and financial statements. Yet these readily available sources as they stand, are usually far too inadequate for anything other than superficial analysis of budgetary commitment to participatory development strategies. The data categories are normally too broad to allow ready identification of many activities falling, for example, within AID's "New Directions". Furthermore, in many countries substantial government and quasi-government programs are handled outside the "official" budgets, so it may be necessary to

examine a whole array of semi-official and even private documents to effect meaningful consolidation of government fiscal data. Tax documents often must also be examined and some standardization agreed upon as to the imputed value of tax incentives, the incidence of particular taxes and tariffs, and so forth.

The types of analyses described here call for substantial professional staff capacity not only in Washington but, more importantly, in USAID country missions. We anticipate that implementation of the policies and programs contained in this report may require modified staffing patterns for some country missions or AID/W offices to strengthen AID's analytical capacity in selected sectors and professional disciplines. Missions will be consulted systematically during 1977 on the matter of staffing patterns for implementing criteria under Section 102(d).

E. Selection of Appropriate Concepts for Progress Statistics

AID has commissioned outside experts to prepare studies on performance criteria. These studies analyze various concepts for specific variables within each of the Section 102(d) five broad categories, and they inventory basic sources for data matching these concepts. We view the studies as particularly important elements for our program to develop measures of commitment and progress. In several difficult conceptual areas they provide concrete alternative concepts for indicators, within defensible analytical frameworks, that we intend to introduce as part of future consultations with other donors, USAID field missions, and host governments (see following section).

The lack of consensus in the international community over appropriate concepts for use in assessing income distribution, employment, and agricultural productivity has been a significant stumbling block during the past year in our consultations with donor and host country decision makers, planners, and statisticians. We believe there is a good opportunity, with the support of Section 102(d), for AID to exercise leadership in steering international thinking on performance criteria toward constructive agreements.

VI. Findings and Recommendations on the Five Categories of Section 102(d): Concepts and Available Data

A. Agricultural Productivity [10/]

Various statistical indicators can measure agricultural progress. Among them are "productivity" measures, that is, agricultural output per unit of input. As discussed below, there are serious conceptual and measurement problems associated with the choice of denominator (that is, land, labor, capital, or some combination of inputs) for any productivity indicator. This choice has strong implications for interpreting agricultural progress. There are similar problems with the numerator (that is, agricultural output). In particular, weather can easily cause fluctuctions of more than ten percent -- which are considerably greater than reasonably expected year-to-year improvements due to development efforts.

Productivity per unit of land through small-farm labor-intensive agriculture is one agricultural progress measure, but its universal application without important qualifications may lead to misguided policy.

10/ This section is based in large part on G. Edward Schuh and Robert L. Thompson, "Assessing Agricultural Progress and the Commitment to Agriculture," 1977, available from A.I.D.

It is our judgment that an agricultural productivity measure should be based on the resource that truly limits output expansion; this resource is not land in every country. The choice of approach (even in the context of emphasizing employment) should depend upon the relative availabilities of land, labor, and capital.

We have tentatively developed three criteria for measuring agricultural progress and commitment.

First, total factor productivity, or the growth of total output divided by total input is a better measure than any partial productivity indicator. For example, one drawback of any partial indicator is that it may even show declining productivity when more of a particular input (the denominator) has been used simply because its relative price has fallen. Factors that contribute to increased total factor productivity, and which therefore are properly reflected in a TFP index, include investments in research and extension, education and training of the labor force, improved seed varieties, and modern agricultural inputs.

Second, if a partial agricultural productivity measure must be used, labor productivity (measured for example by agricultural production per member of the total agricultural labor force) is more appropriate than land productivity since raising the productivity of people is an important means of increasing their incomes. 11/ Furthermore, greater increases

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11/ Note that in the case of the total factor productivity measure, all inputs should be defined in flow terms. In the case of the partial labor productivity measure, labor has been defined here in stock rather than flow terms.

in agricultural labor productivity are likely to result when land and capital inputs are spread over the entire agricultural labor force, rather than only a few medium and large farmers. Therefore, labor productivity is a measure of agricultural progress fully consistent with small-farm, labor-intensive agricultural development.

But regardless of whether one uses partial productivity measures or an index of total factor productivity, it is important to remember that they are all ex post indicators. As such they often will not reflect the contributions of crucial investments like agricultural research for periods of five to seven years (and longer). Time lags like these could mistakenly be interpreted as lack of progress or commitment on the part of LDC governments that were in fact taking highly appropriate steps to improve agricultural productivity. Therefore, our third recommended criterion for assessing agricultural progress (and a government's commitment to agricultural productivity) is carefully analyzed budget information on activities like agricultural research, which have long time lags between expenditures and "pay-offs". Such budgetary data should be complemented by information (both quantitative and qualitative) on the extent to which various laws and policies help or hinder small-farm agriculture.

The availability, reliability, and comparability of data to measure agricultural progress vary among countries. Annual time series data are available for area, yield, and production of field crops from 1950 to date for most countries. However, owing to sharp weather-induced fluctuations, trends from these data may not be meaningful unless they span periods of perhaps ten years. Even then, trends in yields

(that is, land productivity) are subject to the conceptual problems mentioned above. The coverage of annual national time series data for inputs other than land is spotty. For example, data for the economically active population in agriculture are normally reported for most LDCs (via censuses) only at ten-year intervals. Therefore, any national labor productivity indicator using currently available data is probably subject to considerable error. 12/ Although annual estimates are published for the consumption of other inputs including nitrogen, phosphorous, potash, several pesticides, harvester-threshers, and milking machines, coverage is neither complete nor comparable for all countries. Therefore, use of a total factor productivity indicator, which requires comprehensive data for all important inputs, is not now possible for significant cross-country comparisons; however, TFP can and should be used more often even now for local-area studies and for diagnoses over time within individual countries. A long-run goal for assessment of LDC progress in agricultural development should be to increase the number of countries where total factor productivity and its determinants can be reliably analyzed and measured over time nationally.

Both the input and output data published by the Food and Agriculture Organization of the United Nations and by the U.S.D.A. are based on official government statistics of the developing countries; although some attempt is made by the U.S.D.A. to "correct" for known errors and obvious discrepancies, the accuracy of the data is highly questionable.

12/ And as noted below in the discussion of employment data, time-allocation statistics are almost totally lacking for LDCs--making more refined measurement of the labor input impossible at the present time.

In addition, data for each country are normally based on statistics from various internal sources, a situation that further exacerbates reliability and comparability problems. As the Agency moves forward in helping developing countries to meet statistical needs (see Annex C), explicit attention will be accorded to improving the reliability and comparability of relevant agricultural data.

B. Infant Mortality

Data on infant mortality rates are interesting candidates for LDC progress indicators for at least two important reasons. In the first place they are widely thought to be indicative of general health conditions in a society (not just infants' health conditions); and in the second place there is potentially an important, and currently a controversial, linkage between infant deaths and desired family size.[13/] But offsetting the conceptual desirability of such data, there are both severe technical problems in generating and analyzing them and a striking shortage of reliable direct measurements for the immediate future in most LDCs relevant to AID programming. [14/]

Regular data for monitoring trends of infant mortality (like annual or biennial data) can derive from national vital registration systems or from continuous national survey programs. Unfortunately, neither reliable national registration or continuous surveys are common in low income countries. Among 52 LDCs surveyed for AID by the U.S. Census

13/ See William P. McGreevey, "Issues in Measuring Development Performance", Annex D below, pp. D-41 - D-48.

14/ See U.S. Census Bureau, "Measuring of Infant Mortality in Less Developed Countries", 1977, available from A.I.D., from which this section is drawn.

Bureau, only 11 apparently have reliable registration and only two have ongoing survey programs that provide infant mortality trend data. Nine of these 13 countries are in Latin America.

However, most countries have some type of infant mortality data from at least one census or survey so that estimates are generally possible (though often not reliable or not current) for infant mortality at a single point in time. Sixteen additional countries surveyed by the Census Bureau have data for two or more censuses or surveys, allowing crude trend estimates--though not on an annual or biennial basis. Furthermore, given the statistical problems and cost of measuring infant mortality with a reasonable degree of accuracy in LDCs, it does not appear justifiable currently to attempt annual or biennial trend reports on infant mortality. In the meantime AID will continue supporting projects that should have long-term impact on the quality of civil and sample registration systems, surveys, and other data gathering. We anticipate that accuracy, timeliness, and pertinence of the data will increase gradually, so that reports on a comparative worldwide (or LDC-wide) basis might eventually be feasible for three-year or four-year intervals--though even under the most optimistic assumptions such worldwide comparability will be far in the future, except for Latin America. As regards development of specific performance criteria that take infant mortality adequately into account, AID will continue to finance modest survey activities and follow-on research to analyze the determinants of infant mortality. (See,for example, Annex A, project 35.)

C. Population Growth

The situation with regard to data and criteria on population growth in LDCs is a good deal better than with regard to infant mortality data, especially as a result of important investments AID, other donors, and LDC governments have made in the World Fertility Survey (WFS) program. However, it must be stressed that the WFS, whose aim is to provide internationally comparable population data with a high degree of statistical reliability, required several years of careful multidonor planning plus additional years for fieldwork. Further, most of the WFS activities are not designed to carry over into continuous national survey programs.

As with infant mortality data, reliable annual or biennial trend data on population growth call for vital registration systems or continuous survey programs. Among 52 LDC surveyed for AID by the U.S. Census Bureau 15/. Only eight now have registration systems with at least 90% coverage for both births and deaths. All but one are in Latin America. Five more countries have birth (but not death) registration of at least 90% coverage. Six additional countries have continuous survey programs, with three of them currently gathering data that allow estimation of annual population growth changes. Growth rates between two censuses can be estimated for 35 of the 52 countries, but these estimates cover such long time spans (normally ten years) that they generally have little relevance for donors' year-to-year aid decisions and host countries' annual planning. A majority of the countries do have data on fertility

15/ U.S. Census Bureau, "Measurement of Population Growth in Less Developed Countries," 1977, available from A.I.D. This section is based on the Census Bureau Report.

(as opposed to "net" population growth) from two or more censuses or surveys, which allow at least rough estimates of trends. However, such trend data are not generally comparable across countries and are not available for anything approaching an annual, biennial, or other continuous basis.

It must be cautioned that although registration systems afford the potential for accurate and regular population trend data, they will not necessarily produce timely data (time lags between gathering and availability commonly run several years), nor will they be attractive in terms of cost and administrative requirements for many of the poorest countries. Continuous survey programs can be a feasible alternative especially if moderate loss of accuracy is tolerable, but only when individual countries are willing to institutionalize them--a process that will not occur quickly or easily, in our judgment. 16/

There is much variation among LDCs with respect to data-gathering potentials. The appropriate population data system for any country is a complex function of overall goals and purposes, costs, existing physical and personnel resources, administrative and legislative environments, and so forth. In some countries, donors may want to give priority attention to helping improve registration systems, while attention to surveys will be more appropriate in others.

16/ It should be noted that, in spite of troublesome statistical problems with fertility survey data, their accuracy expressed in terms of an expected "confidence-interval" is not likely to be nearly so much in question as the accuracy of equivalent-size infant mortality surveys. The matter is purely a technical problem in sampling theory.

AID will continue to assist recipient countries improve demographic data collection and will continue support for analyses of socio-economic determinants and consequences of population growth. Support to continuous multipurpose survey programs (see Annex C) is a potentially useful means to clarify the socio-economic aspects of population growth and is an approach to which the international community appears not have devoted sufficient attention in the past. Furthermore, the criteria we hope eventually to recommend to other donors and to recipients for assessing determinants and consequences of population growth may in many LDCs be derivable from data produced by continuous survey programs.

D. Income Distribution 17/

Progress toward greater equality of income distribution is best measured by improvements in the absolute economic position of the poor. Specifically, progress would be indicated by:

(1) a reduction in the proportion of the population with per capita incomes below a predetermined "poverty level"; and or

(2) an increase in the per capita incomes of individuals below the "poverty level".

This approach contrasts with the usual interpretation of an improvement in income distribution to mean increased relative equality of income distribution as measured by a change in some overall coefficient or a fall in the relative share of total income received by the wealthy and an increase the relative share received by the poor. Most students of economic development care mainly about reduction in absolute poverty or

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17/ This section is based in large part on Gary S. Fields, "Assessing Progress toward Greater Equality of Income Distribution", 1977, available from A.I.D.

economic misery. However, most empirical studies employ relative inequality measures. Not only is this discrepancy between concept and measure illogical but it may also lead to important oversights concerning poverty reduction. It is quite possible for the absolute position of the poor to improve while their relative position remains constant or even deteriorates, and vice-versa. Looking at changes in measures of relative inequality can thus give a misleading picture of progress or lack of progress.

Appropriate data (and analysis) are required to measure changes in absolute economic well-being. It is our judgment that reliable and timely data for measuring such changes are not regularly available. Existing income data may be poor approximations of economic well-being. Income data are rarely adjusted for taxes or government services and, especially in LDCs, only very crude adjustments are typically made for the value of home-produced consumption. Over the short run, these deficiencies may not be serious, but over a longer period they may be significant if, for example, the proportion of home-produced consumption declines and the proportion of income taxed and value of government services received increases. Thus, long run comparisons of levels of economic well-being of the poor based on existing income measures may be quite misleading.

A poverty level or line in income or consumption terms must be defined. This may be done by estimating the cost of basic nutrition requirements and then adding other expenditure components on basic necessities from household budget surveys to construct a poverty level of income. The

poverty line and income distribution data, adjusted for inflation, can then be employed to calculate (1) any change in the proportion of the population falling below the poverty line and (2) any change in the per capita income of that group.

Only 16 of 69 AID recipient countries surveyed possess nationwide income distribution data for at least two points in time. Furthermore, these data are not reliable or consistent. Such data are available only at one point in time for 16 other recipient countries.

Where a poverty line has been established by a country and where comparable income distribution data exist over time, it would be possible to construct measures of changes in absolute poverty or in economic well-being of the poor. But conclusions based on just two or three observations in time, especially when separated by only an interval of a year or two as is the case for some countries, can only be very tentative indications of real trends.

Improvement in the quality and quantity of the basic data must therefore occur before there can be valid measurement of national progress in improving the economic well-being of the poor in LDCs. In a few countries, further analysis of existing data may be possible and fruitful. Another approach is to use proxy indicators, such as changes in real wages of unskilled labor. We will explore both of these avenues during the coming year. For the longer run we will initiate, as described below, efforts to assist countries strengthen their capabilities to measure appropriate indicators of progress in alleviating poverty.

E. Employment

It is our conclusion that the appropriate criteria for diagnosing problems of unemployment and underemployment in LDCs, for analyzing their determinants, and for planning remedial government policies must include adequate information and statistics on the potential household labor supply and total family time-use in order to estimate true capacity in the household to raise real income 18/ through more hours of work and to detect certain directly productive activities, for example by women and children, that would not be counted as "employment" by convential labor-force surveys. Also, we need data collected simultaneously on actual family incomes derived from work. Moreover, it is our tentative conclusion that, looked at in the context of AID's New Directions, existing published data series on unemployment for LDCs have near-minimal relevance as indicators of socio-economic well-being for low income people. The latter conclusion is a strong one and one we have felt some reluctance at accepting, but it is one for which we have found growing support in the international community. Ample documentation is available. 19/ The conceptual problems underlying the existing data seem perhaps the greatest for employment/unemployment among the five broad categories of Section 102(d). Consequently, as one high priority undertaking among our actions to refine criteria, we

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18/ As opposed to monetary income or conventially measured income. For an example of the way an LDC family's real income might fall while monetary might be rising, see McGreevey, Annex D, pp. D-71 - D-72.

19/ See Henry Bruton, "Employment Growth as an Indicator of Poverty Alleviation", (available from AID, and references cited therein.

intend to seek joint work with other donors and/or host countries on combined family income and time data. In general, such combined data do not now exist in a form that allows meaningful cross-country comparisons among the LDCs.

VII. The Determinants of Progress: Previous Findings and Future Possibilities

The AID program for implementing Section 102(d) emphasizes understanding the determinants of development progress, particularly for (but not limited to) the five dimensions of progress listed in the legislation. We believe better LDC data are essential in the long run for carrying out such a program logically, especially as regards our consultations with host governments and other donors, but in the short run AID will continue research and analysis with existing data and will continue to use emerging findings about the determinants of progress to sharpen our planning and allocation judgments.

A significant conclusion from economic development studies over the past few years has been that such matters as family income, family size, infant mortality, employment, and agricultural productivity are so crucially interrelated as to call for simultaneous investigation. Research on these crucial interrelationships is now underway, much of it supported by AID. We know a good deal already, especially about the impact of income, women's employment, and infant mortality upon family size. 20/

20/ A number of recent studies and their main findings are cited in Annex D, "Issues in Measuring Development Performance", by William P. McGreevey. Although the McGreevey paper is not meant to be an exhaustive listing of studies and potential progress determinants, we believe it conveys more than adequately the broad range of issues and possibilities that must eventually be worked into a well-designed

(footnote continued)

For example AID-sponsored studies have indicated that in some LDCs, declines in infant mortality have been necessary (but not sufficient) conditions for declines in family size and that income from women's employment is often associated with decreased "demand" for children. The new analytical approach treats each aspect of family behavior simultaneously as both a cause and an effect of one or more of the other aspects. For example, infant mortality may be one determinant of desired family births, so declines in infant mortality may be "leading indicators" for declines in fertility rates. But infant health and mortality are in part "determined" by family births and family income, and income obviously depends partially upon employment opportunities and (for rural people) upon agricultural productivity.

Overlaying and interacting with this web of cause-effect relations among the five 102(d) indicators (and similar socio-economic variables) for the representative LDC family is a host of broad social and macro-economic factors that also are determinants of development progress: government financial and economic policies, cultural and religious traits, the educational system, basic law and order, to name only a few of the

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20/ Footnote continued....

and defensible program of activities in socio-economic performance measurement. For a very intensive look at determinants of family size, see e.g., Ronald Ridker, ed., Population and Development: The Search for Selective Interventions (Baltimore: Johns Hopkins University Press, 1976). In general, the determinants of the other four Section 102(d) social indicators have not to date received scholarly and analytical attention comparable to that received by the determinants of population growth/family size, although we believe the potential for analysis and research on the other four is just as strong--pending the availability of reliable LDC socio-economic data.

most important. Representative lists of determinants for the five 102(d) goals appear in Table One, broken down between external or "non-controllable" and instrumental or "controllable" categories. 21/ As the table indicates, goals such as reduced infant mortality and better (women's) employment opportunities become, in turn, potential determinants of reduced population growth rates. Such a table is of course a vast oversimplification of the real world and is presented here as illustration only, rather than as a full-blown analytical framework for either policy recommendations or basic research. A challenging task for economic and social science research in both the USA and the LDCs is to disentangle some of these complex cause-effect relations and thereby do a better job than we can now of assessing the policy relevance of individual progress determinants.

For the LDCs a good start in this endeavor has merely begun. Without being naive about the prospects for using social research and economic analysis to rationalize the allocation of government investments and for pushing government policies toward the achievement of some "developmental optimum", over the next decade we should gain a much better understanding via research of the complex determinants of LDC socio-economic change--including especially a better understanding of the linkages among the five 102(d) variables.

21/ This framework is similar to one proposed for the OECD's DAC in 1973. See Performance Compendium, pp. 129 ff., where social criteria receive little attention as compared to financial and macro-economic performance measures.

TABLE ONE

Socio-Economic Performance Indicators and their Determinants

GOAL and Potential Indicators	DETERMINANTS	
	Structural, External, or "Non-Controllable"	Instrumental or "Controllable"
1. HIGHER SMALL-FARM PRODUCTIVITY (a) total factor productivity (b) productivity per unit of labor (c) productivity per unit of land	(a) world prices (b) international trade arrangements (c) weather	(a) domestic price policy (b) efficiency of domestic markets vis-a-vis government actions affecting the private sector (c) sequence and design of government projects (i) emphasis on appropriate technology before heavy commitments to extension, training, credit, ect.? (ii) placement of government resources in areas ("market failure") where economies of scale and externalities mitigate against the private sector? (d) security of tenurial arrangements for small farmers and the resulting effects on Incentives to invest and produce
2. LOWER INFANT MORTALITY (a) infant mortality rate (b) child mortality rate (c) proxy indices	(a) socio-cultural attitudes and practices (b) environment and ecology (water, epidemics, etc.) (c) economic well-being of families	(a) education of mothers (b) availability and prices of medical services and drugs (c) structure of government health programs (curative, preventative, MCH, etc.) (d) policies toward the private sector, including traditional healers
3. LOWER POPULATION GROWTH (a) crude birth rate (b) age-specific birth rates (c) rate of natural increase	(a) attitudes toward children (b) children's economic productivity in agriculture (c) popular perceptions about available means of old- age support	(a) availability and costs of contraceptives (i) government-subsidized (ii) private sector (b) education of women (c) women's roles, especially in the labor market (d) infant and child mortality (e) old-age insurance and security of savings (f) cost of education for children

TABLE ONE (continued)

GOAL and Potential Indicators	DETERMINANTS	
	Structural, External, or "Non-Controllable"	Instrumental or "Controllable"
4. HIGHER INCOMES FOR THE POOR (a) relative shares (b) relative incomes (c) absolute incomes, lowest 40% (d) per cent of population below a poverty line	(a) previous distributions of wealth and opportunities (b) natural endowments of skills and abilities (c) cultural attitudes towards savings, investment, consumption, and work (d) regional disparities of climate, soils, and natural resources	(a) access of education and health (b) efficiency and competitiveness of markets (c) general economic policy (i) savings incentives (interest rates, inflation, security, etc.) (ii) international trade regimes (iii) taxation (iv) licensing privileges and other restrictions (d) stability and security of land tenure (e) efficiency of government investments (f) steps to increase the rate of return on human capital
5. BETTER EMPLOYMENT OPPORTUNITIES (a) employment ratio (b) unemployment rate (c) time allocation patterns of all family members	(a) natural endowments and/or previous distribution of skills, abilities, education, and good health (b) cultural attitudes towards women (c) international shocks and business cycles (d) international arrangements on trade and migration	(a) educational policies and opportunities (b) general economic policies (i) exchange rate and interest rate policies (ii) minimum wage laws and other restrictions on hiring (c) research on labor-intensive technologies (d) policies to improve efficiency of labor markets (information, elimination of privately-imposed restrictions, assistance to migration, etc.)

As noted above (Section II) we believe the key to resolving the "progress versus needs" dilemma that has plagued earlier approaches to the use of performance criteria lies in the development of adequate information about the causes or determinants of socio-economic change in LDCs. Currently available findings from previous research about the links between infant/child mortality and desired family size have already caused major shifts in both donors' and recipients' policies with regard to family planning and population growth; research about the economics of technical change in peasant agriculture has caused equally major shifts in the international community's strategies for raising agricultural productivity. But across the board, previous research findings are still woefully inadequate with regard to the determinants of the 102(d) variables in various typical LDC settings. Inquiries into these determinants have been among the most important themes of the AID central research program in social science for many years. (Some relevant projects are listed in Annexes A and B.) We believe such activities, complemented by increasingly pertinent and reliable LDC micro-data, can become much more important to recipients and donors in the future.

VIII. On-Going Activities Relevant to Development of Performance Criteria and Progress Measurement

A. Inventories of Mission and AID/W Projects

We have not attempted to develop an exhaustive list of AID activities that help lay the groundwork for better socio-economic performance criteria, because it would almost be possible to include in such a list the evaluation components of nearly all major projects in maternal/child health,

nutrition, family planning, and small-farm agriculture. Therefore, we have merely given a representative list of relevant bilateral field-managed projects, plus a similar inventory of population, health, and nutrition projects managed centrally from AID/W, that are intended to convey a sense of the priority AID has previously attached to the five social indicator goals of Section 102(d) and to measuring host country progress in attaining them. See Annexes A and B.

B. The AID Economic and Social Data Bank

The Economic and Social Data Bank (ESDB) is a computerized system for storage, analysis, and dissemination of socio-economic data relevant to the Agency's design, evaluation, and monitoring activities. It is the single automated Agency-wide source of such data and is scheduled to be operational by June 1977.

The ESDB will have two main components, the File System and the Tape Library. The File System will contain the Agency's official "macro" data file, the Agency's historical loans and grants file, and four files of data aggregated to the country level. Each of the four Country Data files will cover 140 countries over 30-year periods. One file will contain data elements relating to national accounts and certain socio-economic indicators, which provide a basic country profile. In addition, each country will have three files corresponding to sectors of the FAA: Agriculture, Health and Nutrition, and Education and Human Resources. The data in the File System will be used for annual Agency reports. In addition, this System can provide data for assessing the impact of some Agency activities that can be evaluated at national levels.

The Tape Library will be an archive of cross-section and longitudinal "micro" data sets generated by research and other individual studies in LDCs. Each data set will be on computer tape in the Library. Retrieval of the data will be facilitated by an index of key words for each set. Initially the Tape Library will concentrate on data that are currently stored at U.S. institutions or that have been financed by AID overseas. After analyzing available LDC micro-data sets, the Agency will be in a better position to identify data gaps with respect to geographic location, timeliness, and relevance, and to recommend alternative strategies for addressing the gaps. The difficult process of cross-cultural data-based comparisons will be facilitated by storing many data sets in this central location. The Tape Library can provide many basic data for investigating linkages among the five 102(d) categories and related areas discussed above.

All the data elements in both components of the ESDB require careful analysis and management with respect to quality and relevance prior to utilization, since they come from many different sources external to AID. Initial studies indicate wide variances in reliability of the data, confirming in general the findings of other investigators as to the inadequacies of many LDC statistical series (see Sections V.C. and VI above).

C. Methodology, Research, and Dissemination

1. Conference on Impact Measurement

A major conference, under joint sponsorship of AID and the Pan American Health Organization, is planned for 1977 on impact measurement techniques, especially for the impact of health and nutrition projects on family income and employment, family size, educational attainment, and health status.

2. Sample Surveys

A project has been sponsored jointly with the World Bank to produce questionnaire instruments for family-oriented LDC socio-economic sample surveys.

3. Regional Conferences

One or more regional conferences are being planned for Asia or Africa to explore policy issues in progress criteria and impact measurement with host governmental and research personnel.

4. Central America Poverty Profile

A proposed research project will seek to develop and test a system of socio-economic indicators for analysis of rural poverty. The indicators system will consist of selected variables for health, nutrition, income and employment, as well as other areas. It will be designed to assist LDC and donor personnel in planning, implementating, monitoring, and evaluating broad rural development programs. The project will focus initially on descriptive functions of the indicators in a single country. Once the system is institutionalized by the host country, the indicators next can be used to monitor change and eventually should permit statistical program evaluation. The transfer of the methodology to other Central American countries will be an important project goal.

5. Rural Development Methodology

The Agency has several projects for expanding its ability to assist field missions with data systems for project assessment. AID contractors will produce several manuals on practical applications of survey techniques to project design, monitoring, and follow-up evaluation.

A study to review the state of the art in rural development information systems is under way, to be completed in April 1977. A larger project on methodologies for rural development analysis is planned, to build upon the information systems study. The methodology project will produce a manual on alternative data gathering and analytical approaches for rural development and will help provide a network of consultants to help Missions design and execute rural development activities.

6. Research on Income Distribution and Employment

The following major economic research projects are underway with AID sponsorship:

(a) Social, Political, and Economic Interrelationships affecting the Implementation of Equity Policies and Projects: Princeton University

(b) Technology Choice and Employment: Yale Economic Growth Center

(c) The Economics of Family Decisionmaking and Human Capital in LDCs: Rand Corporation, Yale Economic Growth Center, and National Bureau of Economic Research

(d) Distribution of Gains, Wealth, and Income from Economic and Political Development: Rice University

(e) Council for Asian Manpower Studies: individual studies by institutions and scholars in East Asia

D. Consultation with other Donors

Section 102(d) calls for the President to "endeavor to bring about the adoption of similar criteria by international development organizations in which the United States participates". These organizations include

primarily the World Bank, the "regional" banks (for Africa, Asia, the Caribbean, and Latin America), the many specialized agencies of the U.N., including the several regional commissions, and the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD). Implementation of the international provision of Section 102(d) must be a long-term and well-thought-out process, much more demanding in terms of its conceptual and statistical groundwork than if it were simply a matter of developing criteria for application only to U.S. bilateral activities. For example, the process requires precise formulation of U.S. positions tailored in each case to the different mission and operating style of each international agency. To do so we must know what the various agencies are doing now to develop performance criteria and their (declared or implicit) policies for the use of such criteria. With these steps in mind, we have begun professional consultations with appropriate officers in the international agencies.

The Development Assistance Committee (DAC) of the OECD has held a preliminary discussion of socio-economic performance criteria, at the request of the U.S. delegation, and will in early 1977 consider the matter more fully. Since the DAC is the main instrument for coordination among the major bilateral donors, it is the most appropriate organization for discussions aiming at multi-donor consensus on problems of performance criteria.

For the various United Nations agencies, the AID officers assigned for U.N. liaison in New York, Geneva, Paris, and Rome have contacted appropriate U.N. personnel, have exchanged materials relating to performance criteria and statistics, and arranged for meetings between U.N. and AID/W

staff. Contacts with the United Nations Statistical Office in New York deserve special note, since the UNSO is beginning to coordinate multidonor support for a program of multipurpose household surveys in Africa. This program has a potentially important relationship to the AID technical assistance proposal in Annex C below. Liaison with the International Labor Office and the United Nations Research Institute for Social Development are also potentially useful in regard to statistical development, in view of on-going research by these institutions on LDC employment/unemployment, social indicators, and the improvement of LDC data.

Consultation with the staff of the World Bank in Washington has been a feature of AID's activities in performance assessment, socio-economic research, and program/project evaluation for several years. Such contacts will continue. Special contacts have been designated also for exchange of studies and professional views directly connected with Section 102(d). World Bank staff will also participate in discussion of socio-economic performance criteria at OECD/DAC sessions.

Our consultations to date with the other donors have emphasized the weakness of the statistics, other empirical data, and the associated concepts and definitions in areas of socio-economic performance like income distribution, employment, agricultural productivity, demography, and infant/child health, as noted above (section V. E). We have concluded, moreover, that in the long run the persuasiveness and effectiveness of our dialogue with other donors about criteria (not to mention our dialogue with recipient countries) will depend to an

important degree upon the socio-economic relevance, logical consistency, and practical applicability of the concepts, statistics, and analytical approaches we recommend.

E. AID's Current Evaluation System

The current program evaluation system furnishes a means for project design and monitoring, by which managers in the field can appraise causal linkages from project "inputs" to "outputs" and subsequently to higher order purposes and host countries' broad socio-economic goals. AID has given the system particular attention the last few years as our chief means for assessing the likely effects of specific projects upon emphasis sectors and target populations. In addition to these on-going activities closely linked to project design, the other main elements of the evaluation system are (2) special in-depth post-hoc studies of specific projects and (3) broader analyses of sectoral issues and/or project types. Steps taken recently to improve the evaluation system include (a) requirements that all projects incorporate, as a condition for approval, appropriate evaluative elements such as collection of baseline data, verifiable targets, progress indicators, and concrete follow-up evaluation plans; (b) extension of the evaluation system to cover development loans, PL-480, and other "non-project" activities; (c) increased emphasis on the training of direct-hire, contract, PASA, and host country personnel in evaluation and related analytical methods; and (d) installation of a new Development Information System intended to assess, distill, and deliver to operating personnel both (1) the lessons of AID's experiences with particular types of projects and (2) state-of-the-art technical information. Future

AID-Sponsored research and other work on impact measurement (see, for examples, Annex A, projects 5 and 35; and subsection VIII.C.I) are intended also to contribute to improved effectiveness of the evaluation system.

Broadly speaking, AID's general experience with evaluation indicates the effectiveness of the process depends heavily upon the quality and clarity of program/project design, particularly with respect to projects' objectives. Therefore, we have adopted a methodology, called the Logical Framework Matrix, to integrate design and evaluation. This device assists project designers to articulate a prospective chain of causal linkages, running from project inputs to the host country's socio-economic goals; to clarify assumptions about external factors that may affect the causal linkages; and to establish progress indicators for monitoring project achievements. This approach is most effective when used together with collection of baseline data, review of prior experience with similar projects, and follow-up measurement via experimental design, quasi-experimental design, and social science research techniques. (It must be stressed however, that operational conditions in many host countries, particularly the lack of skilled counterpart technical personnel, often inhibit severely donors' abilities to use sophisticated design and research techniques for collaboratively gathering and analyzing baseline data and for setting up rigorous impact measurement systems.)

IX. New Activities

A. Interim Guidance for the Use of Performance Criteria in AID's Programming

One major thrust of AID's "New Directions," in addition to an increasing focus on poorer countries, has been allocation of assistance among sectors and projects within countries to reach the poor more effectively.

Our next step to sharpen country and sectoral allocation decisions in the ways implied by Section 102(d) will be to introduce the five broad categories of 102(d) (and similar relevant criteria) explicitly into preparation of the Agency's FY 79 budget. Program guidance for FY 79 submissions will be sent from AID/W to missions in the next few months. This guidance will emphasize the importance of using performance data, when available, to analyze project selection and design. But missions will be instructed that since LDC statistical reliability is so often low, recipient country commitment and progress should also be considered explicitly in light of the best non-quantitative analysis available. At the same time, the FY 79 guidelines will stress that improvement of host countries' socio-economic data and analyses, in line with their own interests in better program and policy decisions, is important and that increasing use of criteria based upon such data and analyses will be appropriate for AID programming over the long run.

We believe the "determinants" of socio-economic performance in recipient countries can generally be classified into external ("non-controllable" at least in the short run) and controllable factors. For a possible check list, see Table One above. Missions will be asked in preparing FY 79 budgets

to consider the relationship of projects systematically to the most reliable information--statistical or otherwise--available for their host countries on the determinants of performance. (Much of this information has already been systematized by missions in the preparation of DAPs and sector analyses.) The information also will be briefly assessed for reliability. Comparisons should be made, where possible, with (1) neighboring countries, and with non-regional countries having similar levels of development and data; (2) the host country's historical patterns; and (3) the host country's declared national objectives. Mission budget levels and projects selections can then be considered by AID/W in relation to the information about performance determinants.

Missions will also be asked to consider important trade-offs and conflicts, whether real or merely perceived, among the criteria of 102(d), objectives of the FAA such as in Section 102(c) and elsewhere, and important host country goals. Given the lengthy and difficult consultations with recipients and non-U.S. donors implied by attempts to resolve such conflicts and reconcile them with sound long-range program management, we do not intend for USAID Missions to develop rigid "answers" for these sorts of questions in the FY 79 submissions--but for them rather to signal the location and nature of problematic criteria.

Finally, missions will be asked for brief recommendations as to future data and information sources, including possible AID roles in technical assistance for household survey programs and/or socio-economic analysis.

In keeping with the interim nature of the guidance, results and missions' opinions will be evaluated in mid-1977, along with our parallel program of technical assistance for LDC statistical development, so that appropriate changes can be made for the FY 80 program guidelines.

B. Expanded Assistance in Data Development

AID's recent consideration of ways to strengthen use of socio-economic performance criteria, coupled with our longer experience in assisting LDC institutional development, has led to at least two important, and related, conclusions. In the first place, we have concluded that any meaningful program of activities in this area, especially if we want them to have a long-run influence among the LDC's and an influence on other donors, must from the beginning be undertaken fully in cooperation with LDC governments; furthermore, the program must primarily be beneficial to the LDC's themselves and only secondarily beneficial to the donors--and the LDC's must perceive it as such. It will be hard to convince some that performance criteria and determinants data are useful. The poorest countries have usually the weakest data bases and the most inadequate staffs, particularly for project design and implementation.

In the second place, any set of statistical performance targets and criteria will by and large be meaningless operationally, regardless of whatever specifics we might adopt, in the absence of reliable time-series socio-economic data for separate countries. And reliable data on the important variables of agricultural productivity, population growth, infant mortality, income distribution, and employment, especially in

time-series that allow trends to be followed, are strinkingly absent in country after country where we now have major AID programs. Our statistical ignorance is greatest regarding the "poorest of the poor" (whether referring to the poorest countries or to the poorest people within certain countries).

Proceeding then on the assumption that our technical assistance activities can build upon and help to continue a fundamental harmony between donors' needs for relevant criteria and recipient countries' own needs for better socio-economic data, we have further concluded that meaningful long-run implementation of Section 102(d) requires progress in data development. The AID long-run program will particularly involve sample surveys to generate reliable and perennial family-level data typified by the legislation's five categories.

Household sample surveys are now the major instruments for gathering socio-economic data in the United States, although widespread use is relatively new--basically a post-World War II phenomenon. Surveys are, of course, used now in the LDCs for data gathering both at the national and local levels, as well as for research, but in LDCs they are currently much less efficient and less common than seems appropriate.[22/] More efficient and widespread sample surveys are prerequisites for adequate progress measurement both at the project level and at the national level, and we think they are important to measurement of progress under the New Directions. This view is consistent with the Senate Foreign

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22/ For similar conclusions from a United Nations group, see U.N., Statistical Commission, African Household Survey Capavility Programme, E/CN.3/473, February 17, 1976.

Relations Committee report on the 1975 Section 102 amendments, which suggested "that the Agency for International Development support a series of random sample surveys and such other methods of data development in selected less developed countries as offer . . . a reasonable basis for establishing benchmarks and measuring progress toward the specified objectives". 23/

AID and its predecessor agencies have conducted significant technical assistance activities in the past to support host country statistical development, focussed primarily on matters like national income data and population censuses. In recent years, almost the only significant activities in this general area have been large projects for demographic data under the AID population program (see Annex A), which will continue. We are considering a new approach (described in Annex C) that can enable AID to give more attention specifically to the types of socio-economic data, not within the scope of the present demographic program, that are central to better planning and implementation of participatory development strategies.

23/ U. S. Senate, Committee on Foreign Relations, International Development and Food Assistance Act of 1975, Report No. 94-406, p. 36.

ANNEX A

Inventory of Selected Centrally-Managed Activities Contributing to Development of Progress Criteria for Reduced Population Growth and Infant Mortality

This representative inventory of projects is an attempt to clarify parts of the Agency's activities that address progress measurement for two variables in Section 102(d) of the Foreign Assistance Act, population growth and infant mortality. It includes centrally-funded projects related to fertility, mortality, and infant mortality. The projects are monitored in the Offices of Health (TA/H), Population (PHA/POP), and Nutrition (TA/N).

The inventory groups the projects into three categories:

I. Those that contribute directly to measurement of fertility, general mortality, and infant mortality.

(a) Pilot research projects for measuring impact on vital rates of (i) nutrition and health interventions and (ii) different health and family planning delivery systems; (b) projects for implementing surveys or vital registration systems to collect and analyze demographic data or projects that analyze existing demographic data; (c) projects for building institutional capacity to collect and analyze demographic data from censuses, surveys, and vital registration systems.

II. Those that contribute to measurement of other relevant variables, such as morbidity, nutritional status, and contraceptive behavior.

(a) Pilot research projects for assessing impacts on morbidity, contraceptive prevalence, and nutritional status of different distribution systems or health and nutrition interventions; (b) project for implementing national sample surveys on nutritional status or contraceptive prevalence.

III. Research that attempts to create models or simulations or lay the groundwork for future projects to measure impact or progress.

(a) Research that retrospectively examines socio-economic determinants of fertility or infant mortality; (b) research that prospectively examines impact of development activities on fertility, mortality, infant mortality, or morbidity.

The listed projects have financial obligations for FY 76 and/or FY 77. The inventory is not exhaustive, since at least some components of many other projects are also relevant; but it does convey a sense of the priority AID has attached (especially via its central research program) to developing better progress measurement for goals like reduced infant mortality and population growth.

Category I Projects

1. Corn Fortification Field Test

   (a) Monitoring Office: TA/N

   (b) Contractor or Grantee: Institute for Nutrition of Central America and Panama (INCAP)

   (c) Data Source(s) and/or Country Site(s): Guatemala

   (d) Aim(s): To determine the biological effects on pre-school children of improved protein quality and quantity in corn by fortifying with soybean flour and lysine. To measure the impact of the fortification program on the growth patterns of children five years old and younger, on their mortality rates, and on their morbidity rates.

   (e) Status: Project completed waiting for final review and report.

2. Effect of Protein-Calorie Intervention on Human Growth and Mortality Rates

   (a) Monitoring Office: TA/N

   (b) Contractor or Grantee: Institute for Nutrition of Central America and Panama (INCAP)

   (c) Data Source(s) and/or Country Site(s): Guatemala

   (d) Aim(s): To determine, in a population with dietary limitations in energy and protein, the relative effectiveness of several separate nutritional interventions on the diet which include (a) improvements in protein quality, (b) improved protein quality and quantity, and (c) increased calorie intake. The effectiveness will be measured in terms of the impact of these interventions on fetal and postnatal physical growth and on morbidity and mortality rates in the first two years of life.

   (e) Status: This is a funded ongoing project, initiated in 1976. The villages for the study should be selected, health posts established and methodology tested by March 1977.

3. Maternal Nutrition and Infant Morbidity

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: Pan American Health Organization/Institute for Nutrition of Central America and Panama (PAHO/INCAP)

(c) Data Source(s) and/or Country Site(s): Guatemala

(d) Aim(s): To study the relationship of mother's nutritional status during pregnancy and lactation with infant growth, morbidity, and mortality during the first year of life.

(e) Status: First annual report submitted in November 1976.

4. Effect of Maternal Diet on Offspring

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: Johns Hopkins University

(c) Data Source(s) and/or Country Site(s): Taiwan

(d) Aim(s): To measure the effects of protein supplements for women on their offsprings' health as measured by the infants' birth weight, growth rate, morbidity, and mortality.

(e) Status: Project's data collection operation completed in 1973-74. (The death of the principal investigator at the end of 1973 has delayed analysis and the final reporting of the project findings.)

5. Health Benefits of Improved Water Supplies

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: Not yet determined.

(c) Data Source(s) and/or Country Site(s): Brazil

(d) Aim(s): To produce a definitive study for health and planning offices, foreign assistance agencies, and investors, which will provide evaluative and planning guidance for making decisions in the water supply segment of the public utilities sector. With the large amount of attention paid to experimental design, sampling procedures, survey design, systems analysis, and other areas of research, this project could serve as a model of studies to measure the impact on infant mortality of interventions not limited to environmental sanitation (e.g., other health, nutritional, and educational interventions).

(e) Status: Under review before final decision on implementation.

6. Population Dynamics in Asia and the Pacific

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: East-West Population Institute, University of Hawaii

(c) Data Source(s) and/or Country Site(s): Asia (From Iran Eastward)

(d) Aim(s): To establish an institutional capability at EWPI to assist Asian countries improve estimates of fertility and population change by developing and disseminating techniques to improve census, survey, and vital registration data collections and analyses. The project has developed techniques to analyze deficient demographic data (especially the "own children" technique), has carried out demographic analyses of the surveys in several Asian countries, and most importantly has established an institutional capability through methodological research at EWPI that can be utilized to collect data to measure impact.

(e) Status: Grant funding for core support of EWPI is ending at end of FY 77. A new project beginning in FY 78 is proposed.

7. Laboratories for Population Statistics

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: University of North Carolina

(c) Data Source(s) and/or Country Site(s): Turkey, Kenya, Ecuador, Colombia, Philippines, and Morocco

(d) Aim(s): To establish an institutional capacity within selected LDC's for designing and implementing demographic data systems and methodologies that provide an informational basis for social and economic developmental planning.

(e) Status: Current emphasis is in Turkey where a nationwide Dual Recording System (DRS) has been established and in Kenya. Project finishes in FY 78.

8. Population Data Systems

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: International Statistical Programs Center, US Bureau of Census

(c) Data Source(s) and/or Country Site(s): Worldwide

(d) Aim(s): To help LDC institutions develop capacity to produce and use demographic and family planning data so as (1) to understand population growth and its implications and (2) to develop, administer, and evaluate population programs and policies. Specific strategies include the compilation, evaluation, and analysis of demographic and family planning data in support of population programs, and the provision of technical assistance relating to census activities. Computer software for analyzing censuses and surveys has been installed in 47 countries. Systems to gather family planning service statistics are in use in five countries. Though measurement of progress and impact was not a specific goal of the project, fertility and infant mortality data have been compiled that can be used for these purposes.

(e) Status: Scheduled to terminate at the end of FY 77.

9. 1980 Round of Censuses

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Not yet determined.

(c) Data Source(s) and/or Country Site(s): The 36 countries with A.I.D. bilateral population programs and 13 other LDC's

(d) Aim(s): To help generate current and reliable demographic data by providing training, methodological/technical, and consultative assistance in support of LDC census operations in the 1980 period. Reliable census data, among other things, can be used for (1) calculating population growth rates; (2) providing denominators for fertility and mortality rates; (3) examining the distribution of population; and (4) providing a sampling frame.

(e) Status: Project Paper to be completed by the end of 1976.

10. Measurement of Demographic Change

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: National Center for Health Statistics

(c) Data Source(s) and/or Country Site(s): Worldwide (All countries with A.I.D. population bilateral support and selected other LDC's).

(d) Aim(s): To generate continuous, current, and reliable fertility and mortality data in selected developing countries by improving systems for recording vital events or by implementing sample registration systems; and to utilize the data generated by these or other statistical systems to measure the demographic impact of family planning programs. The traditional method of obtaining continuous demographic measures of fertility and mortality is an accurate, reliable vital registration system; the project attempts to improve those systems which can produce data to measure demographic impact. Where existing registration systems are too inadequate for timely improvement, this project will attempt to implement other data collection systems that can also produce impact measures.

(e) Status: Project began in August 1976.

11. World Fertility Survey (WFS)

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: International Statistical Institute

(c) Data Source(s) and/or Country Site(s): Worldwide, 40-45 LDC's

(d) Aim(s): To assist a large number of interested countries carry out nationally representative, internationally comparable, scientifically designed and conducted surveys of human fertility (and fertility regulating) behavior. The data on fertility and family planning can be used for policy formation and efficient population program management.

(e) Status: The A.I.D. Research Advisory Committee (RAC) has recently approved a three-year extension (to 1980) of the WFS, which was originially intended to be a 5-year project. Surveys are operating in 24 LDCs, fieldwork has been completed in 16, and 4 country reports are finished.

12. Evaluation of Family Planning Program Effectiveness

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Community and Family Study Center, University of Chicago

(c) Data Source(s) and/or Country Site(s): Colombia, Thailand, Costa Rica, Indonesia, et. al.

(d) Aim(s): (1) To assess the impact of family planning in several key developing countries with major family planning programs; and (2) to provide technical assistance and training in techniques of family planning evaluation.

(e) Status: Data analyses completed in Colombia and underway in Thailand, Indonesia, and Costa Rica.

13. Population and Family Planning Research in the Middle East

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Egypt

(c) Data Source(s) and/or Country Site(s): The American University in Cairo, Social Research Center (SRC)

(d) Aim(s): (1) To investigate factors affecting population growth in Egypt. (2) To provide essential information for the formulation of population policy in Egypt. (3) To build up the capabilities of SRC for population research.

(e) Status: Project completed. The following studies were carried out: (1) sociological factors affecting fertility; (2) measurement of population change; (3) family planning acceptors, and (4) an experiment to test the effect of implementing different family planning distribution systems.

14. Matlab Contraceptive Distribution Study

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Cholera Research Lab

(c) Data Source(s) and/or Country Site(s): Bangladesh

(d) Aim(s): To test and attempt to assess effectiveness of a household contraceptive delivery system in rural Bangladesh. The feasibility of the household delivery concept, total demand for the contraceptives (orals and condoms), and the program's demographic impact will be measured. The methodology used (a dual recording system) for collecting vital events is among the most reliable available.

(e) Status: Fertility surveys have been completed in both the treatment and control areas.

15. Research on Low-Cost Contraceptive Distribution in Rural Areas

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: East-West Center, University of Hawaii

(c) Data Source(s) and/or Country Site(s): Korea

(d) Aim(s): To test various low-cost contraceptive delivery systems for reaching persons living in rural areas who are not current users of family planning programs. As part of this project, the complete household canvass system of distribution will be tested among a large population for changes in fertility and contraceptive prevalence. The results will be compared with those of the national family planning program. Due to the large size of the treatment population, the data for measuring the impact of household distribution of contraceptives on fertility should be powerful statistically.

(e) Status: A baseline fertility survey will be conducted and the delivery system initiated in the large population study area during 1976.

16. Testing Family Planning Delivery Systems, Operations Research

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: American University in Cairo, The Population Commission of the Philippines, et. al.

(c) Data Source(s) and/or Country Site(s): Egypt, Thailand, Philippines, et. al.

(d) Aim(s): To improve cost-effectiveness of family planning programs in the developing world through development of prototype delivery systems and operations research on these systems. Data on the prevalence of contraceptive use and fertility will be collected. Thus an examination of "before-after" changes between different programs can lead to a measure of impact.

(e) Status: Program active in several countries.

17. Operational Research for Family Planning Programs

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Center for Population and Family Health, Colombia University

(c) Data Source(s) and/or Country Site(s): Haiti, Colombia, Bangladesh, Ecuador, Mexico, et. al.

(d) Aim(s): To initiate a series of research projects to study family planning distribution systems. Among other activities, the impact that different programs with varying distribution systems have on fertility and contraceptive behavior will be measured.

(e) Status: Sub-projects are underway in five countries.

18. Programmatic Grant, Population Council

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: The Population Council

(c) Data Source(s) and/or Country Site(s): Worldwide, emphasizing Latin America, Africa, and Near East.

(d) Aim(s): Population Council has maintained a program of institutional development that has included family planning demonstration projects; research, evaluation, and training; demographic studies; and the role of population in development planning, to build up the institutional capacity of host countries to carry out population research. There have been direct contributions to the measurement of program impact on fertility through collection and analysis of demographic data from surveys.

(e) Status: Project has provided assistance to over 70 institutions in 35 countries since FY 69.

19. Development and Evaluation of Integrated Delivery Systems (DEIDS)

(a) Monitoring Office: TA/H

(b) Contractor or Grantee: American Public Health Association

(c) Data Source(s) and/or Country Site(s): Worldwide and Thailand Sub-project

(d) Aim(s): To provide technical assistance for requesting countries on assessing feasibility, project design, and evaluation of integrated health delivery systems (IHDS); to develop and publish guidelines for evaluating local and national IHDS. In Thailand, to develop and evaluate a model health delivery system that provides integrated maternal and child health, family planning, and nutrition services to reproductive-age women and pre-school children.

(e) Status: Thailand sub-project has been active since 1974, evaluation plan has been approved, and evaluation task force has been established in country. Core staff in Washington to complete draft of evaluation guidelines by December 1977. Ongoing, short-term technical assistance for many countries.

20. Colombia Health Delivery System

(a) Monitoring Office: TA/H

(b) Contractor or Grantee: Tulane University

(c) Data Source(s) and/or Country Site(s): Colombia

(d) Aim(s): To provide coordinated technical assistance aimed at facilitating the analysis, simplification, and evaluation of an integrated health services delivery system implemented by the Government of Colombia. One of six research protocols deals with the scientific measurement of program impact on patterns of morbidity, mortality, and fertility.

(e) Status: All six research protocols are underway.

Category II Projects

21. Combatting Iron-Deficiency Anemia

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: Center for Disease Control (CDC); Institute for Nutrition of Central America and Panama (INCAP); others yet to be determined.

(c) Data Source(s) and/or Country Site(s): Nepal, Sri Lanka, Togo, Guatemala, others to be determined.

(d) Aim(s): Multifaceted program to assist LDCs implement programs for alleviating iron-deficiency anemia. Program includes prevalence surveys to measure the extent of the problem and creation of a methodology for evaluating impact of programs in various countries.

(e) Status: Surveys are ongoing in Sri Lanka and Nepal, but many of the participating countries have not yet been selected.

22. Voluntary Agency Nutrition Capabilities for Evaluation of Pre-School Nutrition Programs

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: CARE

(c) Data Source(s) and/or Country Site(s): India, Dominican Republic, Colombia, Pakistan, Costa Rica

(d) Aim(s): To draw on existing experience as well as new approaches for development of guidelines that may enhance pre-school feeding programs. The guidelines will be available as tools for planning and evaluating intervention programs that aim to improve the nutritional status of pre-school children.

(e) Status: A worldwide review of all relevant CARE programs has been completed (February 1976). An in-depth field study of selected programs will be completed in early 1977. Using these results, a pilot program will be implemented to test hypotheses about program design, to be completed by the end of 1978.

23. Evaluation Methods for Child Feeding Projects in Developing Countries

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: Checci and Company

(c) Data Source(s) and/or Country Site(s): Colombia, Kenya, Philippines

(d) Aim(s): To provide a methodology for the evaluation of the cost and effectiveness of supplementary feeding programs (both MCH and school feeding) for children in developing countries.

(e) Status: The methodology has been field tested on feeding projects in the three countries above. A final report has been prepared and is being evaluated.

24. Applied Methodology for Child Feeding Evaluation

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: To be determined.

(c) Data Source(s) and/or Country Site(s): Worldwide

(d) Aim(s): To promote the use of a standard methodology for evaluating child feeding programs worldwide and to pool the data from such evaluations to form a large statistical sample for worldwide evaluation.

(e) Status: Waiting for the results of two projects that were designed to establish the standard methodology.

25. Nutrition and Dietary Surveys/Surveillance

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: (i) UCLA; (ii) Center for Disease Control (CDC)

(c) Data Source(s) and/or Country Site(s): Sierra Leone; possibly Egypt, Indonesia, Morocco, Bolivia; others.

(d) Aim(s): To assist eight LDC's carry out national nutrition surveys that permit them to analyze and monitor the nature, magnitude, and causes of malnutrition. To improve the methodology for determining nutritional status and dietary patterns, and to maintain nutrition status surveillance.

(e) Status: Project approved; nutrition status surveys are intended for eight countries; dietary intake survey will be done in four, and nutrition surveillance systems will be established in two of these countries over the next three years.

26. Nutrition Analysis and National Planning: Dietary and Nutrition Surveys

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: (i) UCLA; (ii) Center for Disease Control (CDC)

(c) Data Source(s) and/or Country Site(s): Liberia, Lesotho, Nepal, Sri Lanka, Togo, possibly Morocco

(d) Aim(s): To provide statistically valid national survey measures of the prevalence of acute and chronic protein-calorie malnutrition and other forms of malnutrition (e.g., anemia, Vitamin A deficiency) for children 0 - 5 years old and their mothers.

(e) Status: Survey and report completed in Liberia, Nepal, and Sri Lanka, underway in Lesotho and Togo, and being negotiated in Morocco.

27. African Data for Decision Making

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Data Use and Access Laboratories

(c) Data Source(s) and/or Country Site(s): Kenya, Cameroon

(d) Aim(s): To make better use of demographic and socio-economic data by providing easy-to-use software that will facilitate accessibility to the data. Currently being used mostly to process service statistics. However, the software could also be used to process data for the analysis of fertility and mortality.

(e) Status: Terminated at the end of FY 76. Continued bilaterally in Kenya.

28. Contraception Prevalence Surveys

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Not yet determined.

(c) Data Source(s) and/or Country Site(s): To be selected from A.I.D. Bilateral countries and other LDCs.

(d) Aim(s): To carry out repetitive sample surveys of contraceptive prevalence in several developing countries with active public and/or private sector family planning programs, and to publish the resulting data for use by LDC family planning program administrators.

(e) Status: Project paper still being reviewed.

29. Management and Consultant Services for Evaluation

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Center for Disease Control (CDC), US Department of Health, Education, and Welfare

(c) Data Source(s) and/or Country Site(s): Throughout Latin America, Bangladesh, Philippines (24 Countries)

(d) Aim(s): To improve logistics management and program evaluation of contraceptive distribution programs and thus increase the efficiency and accountability of in-country distribution networks. Among other activities, CDC personnel will continue to assist in collection and analysis of service statistics including prevalence data. Furthermore, by providing technical assistance, the project attempts to improve the institutional capability of the host countries to collect and analyze service statistics and contraceptive prevalence data, thus indirectly helping measure program effect.

(e) Status: Ongoing via HEW since 1974.

30. Food Waste/Sanitation Cost-Benefit Methodology

(a) Monitoring Office: TA/H

(b) Contractor or Grantee: University of North Carolina

(c) Data Source(s) and/or Country Site(s): Guatemala

(d) Aim(s): To provide the methodology, field studies, and data analysis to show if provision of piped water supply to households, improvements in household environment, and modification of health behavior through education can result in (1) a decrease in the incidence of diarrheal disease; and (2) a decrease of intestinal malabsorption; furthermore, the economic benefits of improved intestinal absorption are to be measured.

(e) Status: The collection of data is scheduled to be completed by the end of 1976. Final report is due March 1978.

31. Vitamin A Delivery Systems

(a) Monitoring Office: TA/N

(b) Contractor or Grantee: Center for Disease Control (CDC); American Federation for Overseas Blind (AFOB); Institute for Nutrition of Central America and Panama (INCAP

(c) Data Source(s) and/or Country Site(s): Sri Lanka, Indonesia, Haiti, Guatemala, El Salvador, others to be determined.

(d) Aim(s): To develop country-specific procedures for determining (1) the extent of blindness due to Vitamin A deficiency; (2) techniques to be implemented for alleviating the deficiency; and (3) the methodology for evaluating project impact.

(e) Status: This large project has been initiated and sub-projects are in different stages of development. Prevalence surveys have been completed (Sri Lanka); surveys are ongoing in other countries (Guatemala); sub-projects have recently been initiated in Haiti and Indonesia; but in some countries the contractors are yet to be selected.

Category III Projects

32. Research on Fertility Determinants and Consequences

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: To be determined

(c) Data Source(s) and/or Country Site(s): Pakistan, Colombia, Philippines, Kenya, Mexico, Indonesia, Jamaica, et. al.

(d) Aim(s): To investigate aspects of fertility that, when elucidated, will help LDC governments implement more effective population policies, especially those determinants of fertility responsive to LDC government actions. Among other activities, multivariate analyses of household socio-economic data will examine the socio-economic and other factors associated with different fertility levels.

(e) Status: Funding available at the beginning of FY 77.

33. Demographic/Economic Family Behavior in Malaysia

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Rand Corporation

(c) Data Source(s) and/or Country Site(s): Malaysia

(d) Aim(s): To study factors that affect fertility decision-making. By conducting a series of household surveys, an attempt will be made to determine the relationships of fertility with biomedical, institutional, and socio-economic factors in developing countries and to develop methods to predict changes in fertility. There is no direct measure of impact of programs or progress; however, the relationships established here could be used as a basis for impact studies.

(e) Status: First survey was completed in May 1976; project will be completed by December 1977.

34. Analysis and Evaluation of Population Dynamics

(a) Monitoring Office: PHA/POP

(b) Contractor or Grantee: Smithsonian Institution, Interdisciplinary Communications Program

(c) Data Source(s) and/or Country Site(s): Worldwide

(d) Aim(s): To analyze (1) policy and social barriers that restrict the availability of family planning services and (2) fertility-related factors that impede attainment of social and economic development goals. There has not been a specific focus on the effect of family planning programs. However, several sub-projects provide the statistical methodology and tools that can be used in future studies of impact.

(e) Status: Research terminated at the end of 1976. Smithsonian has published a series of monographs.

35. Efficiency of Health Measures

(a) Monitoring Office: TA/H

(b) Contractor or Grantee: University of Michigan

(c) Data Source(s) and/or Country Site(s): Colombia

(d) Aim(s): To increase current knowledge about the effectiveness with which alternative health technologies influence infant and childhood health and mortality. Project includes a literature survey, a simulation model of "under five" mortality and morbidity patterns, a linear programming model of cost effectiveness, and a final report on policy implications. Project does not specifically measure impact; however, if successful, a model for future measurement of impact of programs on infant and child mortality will be in this research effort.

(e) Status: Project paper completed and contracted.

36. Impact of Non-Health Sector Activities on Health

(a) Monitoring Office: TA/H

(b) Contractor or Grantee: To be determined

(c) Data Source(s) and/or Country Site(s): Worldwide

(d) Aim(s): To expand available knowledge on relationships between health and other sectors; to form conceptual bases for testing specific hypotheses about the impact of non-health sector activities on health. This research is a step or two removed from directly measuring impact. If a stimulation model is developed successfully, it might be used to estimate impacts of non-health projects on, among other variables, infant and child mortality.

(e) Status: Project under design

37. Water Project Effects

(a) Monitoring Office: TA/H

(b) Contractor or Grantee: Resources for the Future

(c) Data Source(s) and/or Country Site(s): To be determined

(d) Aim(s): To use schistosomiasis prevalence and incidence, and perhaps mortality, as indicators of environmental health impacts of water resource projects; such indicators may help predict costs and effectiveness of strategies to prevent detrimental effects of water projects.

ANNEX B

List of Selected Bilateral Projects with Progress Measurement Aspects

Country	Activity
Afghanistan	1. Proposed study on data gaps and data collection in support of development programs.
	2. Demographic survey conducted through SUNY and with Johns Hopkins University.
	3. Farm Economic Survey (FES) conducted in the river basin of Helmand province based on an 800 farm sample. The survey focuses on land and property ownership, cropping patterns, cultural practices, production, inputs, government services and their utilization. This survey is a repeat of a 1970 survey and will provide trend data.
	4. Proposed education survey of students and their school environment; this will not be a household survey. Survey is in connection with Primary School Construction Project.
Bangladesh	1. Land Tenure Trends Survey to study factors affecting ability of small farmers to retain rights in land.
	2. Impact of PL 480 Title II Care Food for Relief Work Program (FFRW) on Participating Rural Landless Laborers and their Families.
	3. Growth of Market Towns in Rural Bangladesh. Survey carried out in connection with Rural Electrification Study; subsequent larger survey will provide indicators of economic growth.
	4. Study of Small Scale Irrigation Project Impact on the Farmer's Ability to Produce Winter Rice Crop.
Cameroon	1. Proposed National Project for Research in the Social Sciences for North Cameroon. This study would compile baseline data, and identify development constraints, patterns of social mobility, and other socio-economic information about ethnic groups.
	2. Impact Survey of Child Feeding Program and Family Planning Clinics.

Country	Activity
Cameroon (Con'd.)	3. First Survey of Child Feeding Program in West Cameroon by Catholic Relief Service (CRS).
	4. Nutrition Surveys in Selected Areas of East Cameroon by CRS. These surveys will determine the amounts of PL 480 food needed in the child-feeding nutrition education project and establish nutritional objectives.
	5. Proposed Studies to Identify Relationship Between Infant Mortality and Population Density. These studies relate to population planning programs.
	6. Proposed Research in Etiology of Wide Variation in Fertility Rates in the Country, to develop quantifiable goals for population growth programming.
	7. Proposed Public Health Laboratory System Survey, intended to result in a system for supporting a national preventive medicine campaign.
Chile	1. Policy Planning and Information System to be established in the Ministry of Agriculture to guide programs concerned with rural poverty.
	2. Nutritional Information System to be established in the Council For Food and Nutrition. This system will compile data on malnourishment of target groups.
Colombia	1. Nutritional survey, 3 year project, to compile information on costs and effectiveness of food distribution programs, nutritional deficiencies, benefits of fortification, effectiveness of nutrition education, etc.
	2. Impact Study of Health Statistics utilizing master sample by National Statistical Agency (DANE) and Ministry of Health.
	3. National Health Survey of 25,000 persons utilizing master sample by Ministry of Health. Previous survey done in 1965.
	4. Quarterly Reports on Condition of Health relating to Loans 069 and 075.

Country	Activity
Costa Rica	1. Rural Profile Indicators Study. Small area profiles have been prepared based on 1973 population and agricultural censuses plus information on inputed farm incomes and costs.
	2. FAM/AITEC Cantonal Studies, prepared for 850 communities in 56 rural cantons. The studies contain data on population, migration, employment, salaries, land use, agricultural production, infrastructure services, and locally perceived problems.
	3. Family Planning/Population Evaluation. Through this centrally-funded project, Cornell University is analyzing rapid fertility decline and impact of official family planning program in this decline.
Dominican Republic	1. Evaluation unit under agricultural sector loans, located in the Secretariat of State for Agriculture.
	2. Production-income-technology survey of 1700 farmers.
	3. Birth and death registration statistics system under health sector loan.
El Salvador	1. Multipurpose National Household Survey Program.
	2. Education Sector Analysis.
Honduras	1. Integrated Rural Health/FP Services. This project includes system for recording client data, use of services overtime, and acceptance of family planning methods and services.
	2. Non-Formal Rural Education. Project includes baseline study of rural population needs and aspirations, with provision for follow-up study and revision of materials employed in the non-formal education activity.
	3. Agricultural Sector Program and Core Services Land Project. Project includes a baseline study of target group compiling economic and social characteristics and current status. Recurrent studies will be conducted to measure changes in target group in terms of income, social organization, and quality of life. These studies include small farmers, cooperatives, and agrarian reform groups.
	4. Nutrition Grant and Loan include a family income and expenditure survey and will help establish a permanent nutrition status monitoring system.

Country		Activity
Honduras (Con'd.)	5.	Role of Women in Honduran Development. Study is to provide insights on role of women among labor income group and suggest ways of improving A.I.D. impact on them.
	6.	Evaluation of the Impact and Efficiency of PL 480, Title II Feeding Programs. Evaluation will examine efficiency and impact of ongoing feeding programs, and design a simplified system for continuing impact evaluation.
	7.	Proposed Demographic Analyses Project.
Indonesia	1.	Labor Utilization in Java. Research project carried out by Institute for National Economics and Social Sciences (LEKNAS) and supported by A.I.D., to provide a model for nation-wide survey on employment and unemployment.
	2.	Intercensal Population Survey. This survey will provide data on impact of family planning programs and obtain needed fertility data, including differential rates of growth.
Kenya	1.	USAID has contracted for socio-economic survey of 10 districts plus follow-up surveys as part of agricultural sector loan. Survey to measure impact of rural roads systems loan.
Korea	1.	Twelve Monographs assessing change by Korean Development Institute and Harvard University. These monographs refer to rural development, population and development, health in social and economic development, and employment. This study is expected to be of considerable value in providing criteria for assessing progress and impact of development programs.
Liberia	1.	Health Management Planning Team. Collects data on health conditions in Liberia.
	2.	Nutrition Survey. This survey has established scientific project departure points for use in "down-stream" comparisons of nutritional sufficiency. Adequacy of several planned projects will be judged on this baseline.
Morocco	1.	Nutrition Systems Study Unit. This project is designed to assist Moroccan Government to assess and analyze its food production, marketing, and distribution systems, against national nutritional needs and priorities.

Country		Activity
Nicaragua	1.	Surveys to evaluate changes in rural poor standard of living indicators, Agricultural Planning Division.
	2.	Employment Surveys to measure labor force changes in employment and unemployment in urban areas.
	3.	Impact measurement surveys of radio nutrition education project.
Pakistan	1.	Four studies of agricultural inputs, particularly fertilizer. Three use mainly sample surveys, while a fourth uses mainly anthropological methods.
	2.	Other surveys and related studies for rainfed agriculture, rural water, rural roads, rural electrification, and water management.
	3.	Three population impact studies (fertility surveys, information feedback system, and contraceptive prevalence survey).
	4.	Baseline survey for basic health services project, plus comparison of experimental and control groups.
	5.	Nutrition planning survey.
Panama	1.	Information and Evaluation System by Banco Nacional de Panama to evaluate impact of Municipal Development Loan 525-T-044. Indicators include municipal revenues, employment, business activities, and construction of new municipal facilities or improvements.
	2.	Demographic Survey Research and Tracer Disease Modules to assess the impact of health care delivery systems provided through Rural Health Loan 525-V-045.
Paraguay	1.	Ongoing Small Farmer Samply Survey. This project will provide indications of change, progress, and agricultural development.
	2.	Area Frame Sampling System Development to improve progress criteria by Ministry of Agriculture.
Peru	1.	Study on Peruvian Poor and Their Geographic Concentration Using Selective Poverty Indicators.

Country		Activity
Peru (Con'd.)	2.	Study of Profile of Peruvian Campensino Women Utilizing Sample Surveys. Study is designed to determine role of campensino woman in the socio-economic life of her family and community, etc., in order to integrate her into development process.
Philippines	1.	Proposed FY 1978 project to develop progress indicators and impact measures in areas related to A.I.D.-funded projects.
	2.	POPLABS vital rates measurement project.
	3.	Bicol rural development project - several design, monitoring, and impact surveys and studies.
	4.	Surveys for project design, monitoring, and/or impact assessment for a number of capital development and agriculture projects.
Syria	1.	Statistical survey project under Health Grant.
Tanzania	1.	National Maize Project Evaluation Survey.
Thailand	1.	Survey of Fertility Behavior in the Context of Demographic/Socio-Economic Development of Muslim Societies in Thailand. Information collected includes education, employment, family health, status of women, nutrition, quality of housing, physical environment.
	2.	Survey of "Social and Psychological Barriers to Adoption of Family Planning in Northern Thailand" by Chiang Mai University.
	3.	Socio-Economic Baseline Data Survey and Evaluation for the Sericulture Settlements Projects in North East Thailand (joint USG, West German and RTG funding).
	4.	Base-Line sample survey of Socio-Economic Status of Farmers in Proposed Lam Nam Don project area.
	5.	Survey on Status of Thai Women to be conducted by National Council of Women. This survey will examine socio-economic, legal status, problems, and needs of women in two rural areas.

Country		Activity
Tunisia	1.	Agriculture sample survey to obtain baseline data for livestock project. Although this activity was originally intended as no more than a project-related measurement tool, it has now broadened into a comprehensive periodic undertaking.
	2.	Social Science Research Fund to provide baseline and progress measurement data for RD project and will also compile information on economic and social conditions in rural Tunisia.
Upper Volta	1.	River Blindness Area: Village Research Yearly study of socio-cultural changes in pilot resettlement village and success of village level technologies.
	2.	Women's Roles in Development. Research to develop information and monitoring system to assess effectiveness of loans to village-level, small-scale women's projects in 60 villages.
	3.	Volta Valley Authority Study. This study concerns problems facing women in new established resettlement zones. Results of study will affect government policy in recruitment practices, land distribution, village structures, and revenue-gathering activities.
	4.	Impact Study of Intermediate Technology on Women in Development. This study will assess effectiveness in three pilot zones of intermediate technology (such as motor-driven grain mills) to lighten women's workload thereby creating free time for education in nutrition improvement and sewing crafts.
Uruguay	1.	Agricultural Research. Socio-economic investigative activities are programmed as part of program implementation. Reviews of existing studies and generation of new data will be combined with extension-related agronomic research.
Zaire	1.	North Shaba rural development project includes compilation unit to define project indicators and collect information on exports, imports, transportation, and sociological changes.
	2.	Nutrition planning project is designed to measure effects of different interventions on child nutrition, infant mortality, and disabilities.
	3.	Proposed agricultural economic development project includes development of an agricultural statistical system with initial emphasis on developing regional sample surveys.

Annex C

A Proposed New Program for Developing Criteria and Statistics on Socio-Economic Performance 1/

A. Introduction

As noted above in the main report, we believe new approaches to socio-economic performance criteria and progress measurement can have lasting and deep effects on recipients' development practices only if the recipient countries perceive these approaches as beneficial to themselves. Fortunately, more and more recipients and donors have in recent years given new prominence in their development strategies to broad-based, participatory growth--with corresponding emphases upon better income and employment opportunities for rural and poor populations, higher small-farm productivity, and lower rates of infant mortality and population growth. These trends suggest that the time may be opportune for a new attempt to solve long-standing data problems. AID is exploring the feasibility of a new program to develop information bases for supporting development and use of progress criteria such as those called for in Section 102(d) and for widening their use among recipients and donors. This program will concentrate on experimental collaborative efforts, built upon what we see as the recipients' and AID's fundamental harmony of interest in better data to plan for and measure participatory development.

More specifically, AID is exploring possibilities for a new multi-year project to assist recipients develop socio-economic performance criteria, to conduct multi-purpose household surveys needed for collecting associated data, and to analyze and use the data in development planning contexts. We hope to start activities on a trial basis in three to five countries during FY 77. This first phase will be evaluated carefully to decide whether the approach is working effectively, and whether to expand the program to other participating countries. Grant funds of up to about $100,000 per year would be made available to participating countries, for a minimum of four years per country. Specific countries chosen for pilot sub-projects would depend of course upon host country willingness for collaboration, other donors' activities (especially in Africa, where the United Nations has proposed a major program of assistance to household surveys), complementarity with USAID mission projects in the particular country, and the quality of proposals submitted. Assuming favorable AID/W evaluation and host country willingness, this activity could eventually be expanded to many or most other major AID recipients over a period of five or six or more years.

1/ The feasibility of this program is under study and remains to be determined.

The sequence of events we have in mind for specific host country sub-projects are (1) an initial data-needs conference and report, (2) a country data-based socio-economic profile, (3) annual conferences between country data users and statistical agencies, and (4) household surveys. In addition to country sub-projects, we plan several central activities to provide common support services and cross-country comparability: (5) methodological research, (6) a technical service center, and (7) evaluation. The survey component is estimated at about seventy per cent of total project costs.

B. Problems in Survey-Based Progress and Impact Measurement

Survey techniques have been widely used in low income countries, not to mention the USA, for many years. Therefore, to propose a program of household sample surveys is not to propose a great deal new. Rather our approach is to increase survey activities in selected "New Directions" areas and, more importantly perhaps, to make on-going survey activities more relevant to development planning and to progress measurement, more efficient, and more effective. Such a program needs careful explanation in the LDCs and in the donor agencies, particularly as to how it differs from past activities. 2/

There is often a degree of apathy towards survey statistics--and even hostility--among some development practitioners. Such attitudes stem from a mixture of reasons. Many experienced development practitioners have seen ambitious sample surveys whose vast quantities of data have been underutilized. Underutilization has often been due, in turn, to lack of communication between data gatherers and potential users at the formulative stages of surveys, so that many data simply were not relevant in the first place. Mistakes in concept, in questionnaire and tabulation design, and in organization and administration have also occurred. Underutilization has also resulted from more easily corrected causes, such as failure to store untabulated data in an accessible place.

Among other reasons for apathy toward survey activities, many operational staff and decisionmakers are under pressure to spend money and "produce results" quickly, so they may be unable to wait for surveys and their analysis. Surveys and analysis are sometimes received cooly

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2/ The discussion of surveys here is not intended to imply that other forms of LDC data gathering (censuses and administrative statistics, particularly) are not also important in a country's total system of performance criteria. It is our considered judgment, however, that relative to past donor and recipient approaches, sample surveys deserve a stronger emphasis and a more central role in AID assistance to recipient countries that wish to strengthen the use of socio-economic performance criteria.

by decision makers chary of the political or bureaucratic consequences of data that might show "the wrong thing." Furthermore, new initiatives can be relatively expensive--yet present statistical activities in LDC's already are woefully under-financed. New financing probably will not occur easily. Finally, over time many events may intervene to change the focus of a survey system, or even destroy it, so that comparable series cannot be achieved or maintained. A survey may be very helpful in providing a picture of, for example, small farmers at a given moment. However, the slowness of change, and the technical problems of measuring complex events can make progress measurement over time very difficult, or even impossible in some contexts.

Despite all difficulties and obstacles, we postulate that it should be feasible to make major improvements in data availabilities related to participatory development, via continuing multi-purpose household sample survey systems. A multi-purpose survey should be not only less costly than two or more single-purpose surveys covering the same topics, due to shared overhead, staff continuity and economy of use, and efficiency through experience, but it should also be more useful by showing the relations among several areas of socio-economic behavior. Yet due to bureaucratic specialization and logistics problems, donors and host governments time and again have limited their efforts to one-time or ad hoc single-purpose surveys, whereas analytical power could often have been increased by combining two or more surveys. For example, demographic data have customarily been collected separately from household economic data in most LDCs. This situation has made research on the economic determinants and consequences of population growth more difficult than it would be if combined demographic-economic surveys were common. This proliferation of surveys appears to be a luxury low income countries cannot afford. By not "re-inventing the wheel" each time a new set of variables is investigated but rather by folding the new variables into an on-going regular survey program, continuous household survey programs in LDCs may result in significant gains in accuracy as well as reductions in cost. 3/

3/ The advantages of multipurpose surveys do not, of course, amount to a blanket argument against single-purpose surveys. It is often the case that surveys designed to get answers on a specific topic can go deeper and do so more quickly than can broader surveys. A particularly attractice approach for LDC's may in many cases be to add single-purpose surveys to the same samples (or sample frames) used in on-going multi-purpose survey programs, attempting to achieve maximum comparability of concepts, definitions, and observation units over time. This approach of linking single-purpose enquiries to on-going national multipurpose surveys is facilitated by modern computer technology, which is now coming into common use by LDC statistical organizations. It has the obvious advantage of giving ready-made historical baseline data to single-purpose surveys.

C. Detailed Description of Contemplated Project Components

(1) Data Needs

Experience in different substantive fields will be brought together to formulate integrated survey questionnaires. The project will work out quantifiable specifications (data sets) to guide development policy and measure country progress and program impact for major areas of recipient and AID interest. These specifications should be grouped as follows: (a) minimum data set, (b) basic data set, and (c) special data set. The minimum data set will represent the least amount of information needed. The basic data set represents a desired level of information. The special data set will comprise all additional informational requirements over and beyond the basic. On the basis of year-to-year review, the data sets will serve as inputs for components (2), "Country Data-Based Reports" and (4), "Household Survey Development." Other technical materials to be prepared include data-user survey forms, country report series formats, four year household survey proposals, country conference agendas, and household survey questionnaires.

(2) Country Data-Based Reports

As the basis for dialogue on country data needs, arrangements will be completed with national planning agencies of assisted countries to prepare inventories of available data and to compile annual data based reports. For these reports, the most reliable current information will be used to complete the data sets developed from component (1) activities. This activity will be coordinated with, and will draw upon, the AID Economic and Social Data Bank. (See Section VIII.B of the main report, above.) Over time, these reports would seek to serve both to help guide development policy and to measure country progress.

(3) Country Conferences of Users and Gatherers

To promote the communication and working relationships needed to define data needs, arrangements will be completed with the national planning offices or similar agencies in participating countries to conduct annual national conferences of data producers and users. Principal purposes of these conferences will be to (a) discuss and validate the country data-based reports; (b) add further information and analyses needed by various host country and donor agencies; (c) consider how or to what extent the data are useful for national programming; (d) entertain recommendations as to additional information needed.

(4) Household Survey Development

This component is the largest. Assistance will be provided for LDCs to carry out continuing multi-subject and special purpose household survey programs. Such surveys will provide information to complete and follow-up the country data-based reports generated through Component (2). However, most LDC household surveys at present are not organized as continuing activities along scientific lines, especially to provide the information required in the areas of AID's priority interest for development policy guidance. To enable this activity to be carried forward successfully, AID assistance might be used in a particular country to improve one or more of the following areas: mapping and frame construction, sampling applications, substantive aspects, organization and staffing, data collection, data processing, and analysis. We anticipate that the assistance will not generally be provided directly or in traditional AID methods. With the help of a generation of training programs, personnel are available in governmental and other organizations of many AID participating countries who possess the necessary skills to carry out activities called for by this project if given proper support and assistance, although for some countries additional training will be needed. AID is therefore considering an innovative approach appropriate to this situation and to recent changes in AID funding procedures by offering a fixed cash reimbursement to each participating government in return for mounting an agreed program. U.S. assistance could be used to finance local expertise as well as (or instead of) U.S. advisors or training for local staff. Participating LDCs would prepare an "Annual Improvement Plan" to indicate how the AID, host government, and other contributions are allocated. Individual governments will no doubt in many cases continue to accept technical assistance from other donors as part of an agreed program (and even bilaterally through the local AID mission, where such a project is an appropriate part of the bilateral country program). Programs will be in collaboration with national planning agencies of the participating LDCs. These agencies will assist in selection of the statistical organization responsible for implementing the household survey program.

(5) Methodological Development

Special development studies will be undertaken by agencies responsible for planning and conducting the household sample surveys as well as by other collaborating LDC and U.S. institutions. All aspects of the project will benefit from such studies, since they will produce improved criteria and seek more relevant concepts and techniques for making their use feasible. This component is needed to provide "on-going" adjustments of the survey systems as experience with data collection and use accumulates. Central management will also serve to reduce duplication and make it unnecessary for individual countries to "reinvent the wheel".

(6) Technical Center

A Household Survey Technical Center will facilitate exchange and more effective use of methodology and data. The center would maintain a document library, disseminate methodological materials, store survey results on magnetic tape, and install software for analyzing the survey data. This Center will be used by participating countries and AID, and it will be coordinated with the AID Economic and Social Data Bank. (See Section VIII B of the main report, above.)

(7) Evaluation

A panel of recognized experts will conduct periodic reviews of the overall program, its directions, and funding levels. In addition to this separate Component, the project will call for monitoring and "routine" evaluation of LDC activities by the prime contractor, and AID/W will conduct its own monitoring and evaluations. Evaluation of LDC activities will also be reflected in the annual country conferences of data users and producers and in the National Improvement Plans of the LDC statistical agencies responsible for the household surveys.

Annex D

ISSUES IN MEASURING

DEVELOPMENT PERFORMANCE

William Paul McGreevey

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This paper examines some of the issues associated with the generation and interpretation of information about the progress of the poor majority and the commitment of governments to improving their lot. The first two sections provide background on the new international assistance strategy. Succeeding sections treat measurement problems involved in using existing data, generating new data, and interpreting those data as indicators of development performance and progress. A concluding section summarizes recommendations for future action.

I. New Directions for AID. Foreign aid used to mean dams, roads and bridges. The aid programs of the Post-World War II period were a natural outgrowth of earlier foreign aid experiments. For example, the United States government had been assisting the governments of Mexico and Central America in the construction of a Pan American Highway since the 1920s. That project was a technological compromise after abandonment of an earlier dream of an Inter-American railway, which was discussed at international meetings as early as the 1890's. The United States' presence in the Philippines, Micronesia and Caribbean states in the first half of the twentieth century often had capital projects as an adjunct of economic management (the customs office of Haiti), maintenance of public order (the Marines in several countries) and advisory services on public finance.

By the 1970's, the aid-as-capital-projects strategy had been called into question. Bilateral US assistance provided through the Agency for International Development (AID) had shrunk dramatically: "Calendar year

1974 AID disbursements in 1967 prices were 44 percent below 1967 levels."[1] New directions in the early 1970s required a program more appropriate in size and scope to the funds available. That program was designed not to exclude infrastructure projects but to assure that benefits from them were diffused among the poor majority.

AID emphasized three areas: (1) Food and nutrition, (2) population and health, and (3) education and human resources development. The new directions were intended to overcome the thorny problem of assuring that aid reaches the needy. Large projects seemed in the past too often to benefit large landholders, large contractors and the already well-to-do. Thus AID could write in mid-1975 that

> Projects and programs are especially directed toward reaching the poor majority within the populations of [developing] nations. We urge recipient governments to design policies and programs to assure that the benefits of economic growth accrue to all the people and not a select few. Influencing LDC institutions, policies, and systems are indirect but essential means of assuring that benefits reach the broadest groups within the poor majority.[2]

But at about the same time, other observers were asking, Is the new strategy working?

II. Criteria for Progress and Commitment. The Senate Committee on Foreign Relations had recently established the new Subcommittee on

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[1]Agency for International Development, Implementation of 'New Directions' in Development Assistance, Report to the Committee on International Relations on implementation of legislative reforms in the Foreign Assistance Act of 1973, GPO, Washington DC 1975, p. vii.

[2]Agency for International Development, Implementation. . . ., p. 3.

Foreign Assistance. It held its first hearing on 3 June 1975 and had seven subsequent days of hearings and sessions culminating in September. Among the significant results of those hearings was a further specification of the new directions, including consideration of requirements for AID (and host government) performance on selected progress criteria:

> For the purpose of assuring that development assistance furnished under this chapter is increasingly concentrated in countries which will make effective use of such assistance to help the poor toward a better life (especially such countries which are suffering from the worst and most widespread poverty and are in greatest need of outside assistance), the President shall establish appropriate criteria to assess the commitment and progress of countries in meeting the objectives set forth. . . . In establishing such criteria, the President shall specifically take into account their value in assessing the efforts of countries to --
>
> (1) increase agricultural productivity per unit of land through small-farm labor-intensive agriculture;
>
> (2) reduce infant mortality;
>
> (3) control population growth;
>
> (4) promote greater equality of income distribution, including measures such as progressive taxation and more equitable returns to small farmers; and
>
> (5) reduce rates of unemployment and underemployment.
>
> The President shall endeavor to bring about the adoption of similar criteria by international development organizations in which the United States participates. Presentation materials submitted to the Congress with respect to assistance under this chapter, beginning with fiscal year 1977, shall contain detailed information concerning the steps being taken to implement this subsection.[3]

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[3]House of Representatives, Committee on International Relations, New Directions in Development Aid, Excerpts from the Legislation (Washington DC, GPO 1976), p. 2.

What information must AID gather to satisfy the Congressional mandate? The legislation speaks of both commitment and progress, i.e., not only what is happening but how public and international efforts contribute to that progress. Consider the following five-question summary of the data-generation, data-use process implied by the search for commitment and progress:

(1) What is happening to agricultural productivity, population growth, infant mortality, unemployment and income distribution?

(2) What are the determinants of these variables and changes of them over time and from place to place?

(3) What is the character and level of government programs that may affect, directly and indirectly, these variables?

(4) What is the specific impact of Policy X, Program Y or Project Z on agricultural productivity, population growth, infant mortality, unemployment and income distribution?

(5) What are the interactions between these indicators of social progress that may enhance the progress of all when there is improvement in any of them?[4]

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[4] The first four of these questions were suggested by Mr. Robert Parke, Director, SSRC Center for the Coordination of Research on Social Indicators.

Questions 1 and 3 require empirical identification of the 'facts' on each variable or government activity taken by itself. Questions 2, 4 and 5 require interpretive investigations about the relationships between variables and programs. Answers to Question 1 provide an indication of progress yet tell little about commitment. The governments of poor countries may be trying hard to overcome the crushing effect of infant mortality and the hopelessness of unemployment yet may be unable to break the vicious circle of poverty. Good fortune -- finding oil or improved terms of trade -- may make progress appear easy. . . with virtually no real government commitment. Since foreign assistance can hardly be designed to give further support to those lucky enough to do well without trying, questions 2 through 5 must also be answered. AID must assess progress, identify commitment in the governments with which it cooperates, and concentrate on project support directly benefiting the poor. To assess program impact, AID must seek warranted answers to all the questions above.

III. Problems with Measuring Progress. This section provides a brief overview of social indicator data; the apparent demand for data as evinced in proposed additional legislation and two AID projects; poverty-measurement efforts, and consideration of some problems common to social indicators to be used for policy purposes.

A. What is available? In the developed countries, social indicators has recently become a growth industry. The National Science Foundation in the United States devotes a significant program to that topic.[5] Two US government publications, Social Indicators 1973 and

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[5] Social Indicators Newsletter (November 1975) includes a description of more than twenty-five projects currently being supported by NSF -- none of them providing data for developing countries. The social indicators program was warmly applauded in the "Simon Report," Social and Behavioral Science Programs in the National Science Foundation, National Academy of Sciences, Washington DC 1976 (see below Footnote 52).

StatUS, the latter a monthly prepared by the Census Bureau for the Office of Management and Budget, have greatly increased the sophistication and range of data generally available, i.e., outside academic circles, on the social condition.[6] The Social Indicators Newsletter, published about three times a year, includes information on methodological advances, research projects underway and recent publications, all of considerable use to the scholarly community.[7] The American Sociological Review has published several articles analyzing quality of life.[8] An international journal published in Canada has issued two volumes of research papers;[9]

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[6] US Office of Management and Budget published Social Indicators 1973 in 1974; it is currently out of print and no succeeding volume has been produced. StatUS, A Monthly Chartbook of Social and Economic Trends, is compiled by the Federal Statistical System, and has appeared three times (July, August and September 1976).

[7] Social Science Research Council, Center for Coordination of Research on Social Indicators, publishes the newsletter. SSRC has also been responsible for many publications in this field, particularly because of the research interests of Dr. Eleanor Bernert Sheldon, President of SSRC and Mr. Robert Parke, Director of the Center for Coordination of Research on Social Indicators. Examples are Kenneth Land and Seymour Spilerman, ed., Social Indicator Models New York, Russell Sage Foundation 1975; Roxann A. Van Dusen and Nicholas Zill, ed., Basic Background Items for U.S. Household Surveys New York, Social Science Research Council 1975; Robert F. Boruch and Henry W. Riecken, ed., Experimental Testing of Public Policy, Westview Press and SSRC, Boulder, 1975, 145 p.

[8] James G. Anderson, "Causal Models and Social Indicators: Toward the Development of Social Systems Models," American Sociological Review 38, 3, June 1973, 285-301; Elihu M. Gerson, "On 'Quality of Life,'" ASR 41, 5, October 1976, 793-806.

[9] Social Indicators Research: An International and Interdisciplinary Journal for Quality-of-Life Measurement, ed., Alex C. Michalos (Dept. of Philosophy, University of Guelph, Guelph Ontario, Canada), published by D. Reidel Publishing Co., Dordrecht - Holland.

of particular interest are those on the quality of life and the "Easterlin" effect of rising income and constant happiness.[10] The National Bureau for Economic Research publishes a highly technical journal on measurement; one issue was devoted to Latin America.[11] There are many other publications and research programs dealing with social indicators in the United States and other industrial and postindustrial countries; Social Indicators Newsletter may be consulted for specifics.

The Gallup Organization recently published preliminary results of a worldwide assessment of satisfaction with the quality of life. The percentage of those interviewed who were highly satisfied was greatest for North America, almost as high for Western Europe, somewhat lower for Latin America, and dramatically lower for Africa and the Far East (presumably excluding Japan) on almost all of 10 questions asked.[12] These ratings appear roughly consistent with levels of per capita product and recent growth-rates as given in the World Bank's World Tables 1976 (p. 392). Such attitude data, given their subjective nature, are difficult to interpret and to relate to more objective indicators.

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[10] Willard L. Rodgers and Philip R. Converse, "Measures of the perceived overall quality of life," Social Indicators Research 2, 2 September 1975, pp. 127-52; and Otis Dudley Duncan, "Does money buy satisfaction?" Social Indicators Research 2, 3, December 1975, pp. 267-74.

[11] Annals of Economic and Social Measurement: Journal of Computers, Information Retrieval and Research Methodology (NBER, New York). Volume 5, No. 2, ed. by David Kendrick was devoted to applications of control theory to macro-economics.

[12] George Gallup, "Americans Rate Life Quality Highest," The Washington Post, 7 November 1976, p. A-8.

Only two instances among the developing countries were found of reasonably comprehensive publication of an avowed set of national social indicators: Malaysia[13] and the Philippines.[14] Data are probably available which would permit such publications for many countries: Until governments have a clear purpose and use for such works, however, they probably would do well not to spend their money. In the meantime, United Nations agencies, including the International Labor Office,[15] the Research Institute for Social Development,[16] and the Secretariat[17] have

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[13] Government of Malaysia, Department of Statistics, Socioeconomic Indicators and National Policy: Malaysia. Working Paper - 1. Kuala Lumpur, October 1974, 41 p. Data presented pertain to eradication of poverty; equalization of opportunity among Malaysia's major ethnic groups, and unification or integration of Malaysian society. Includes data from 1967 and 1970 censuses and changes of variables between censuses. Prepared with advice from Dr. Amos Hawley, Ford Foundation. (This information taken from Social Indicators Newsletter.)

[14] Development Academy of the Philippines, Measuring the Quality of Life: Philippine Social Indicators, Manila 1975, 28 p. The work was directed by Professor Mahar Mangahas, UP School of Economics, who reports in an interview that a larger publication will appear, giving details of data provided in summary form in this brief and excellent publication.

[15] ILO, Household Income and Expenditure Statistics, 1960-72: Africa, Asia, Latin America (available in US at ILO offices, Suite 330E, 1750 New York Avenue, NW, Wash DC 20006, 202/634-6335).

[16] Donald V. McGranahan (Director), C. Richard-Proust, N. V. Sovani and M. Subramanian, Contents and Measurement of Socioeconomic Development (An Institute Staff Study of the Research Institute for Social Development, United Nations, Geneva), Praeger Publishers, New York 1972.

[17] United Nations Department of Economic and Social Affairs, Statistical Office, Toward a System of Social and Demographic Statistics, New York 1975; prepared by Professor Richard Stone; United Nations Economic and Social Council, Social Indicators: Current National and International Activities in the Field of Social Indicators and Social Reporting: Report of the Secretary General, New York, January 1975; United Nations Statistical Commission, "The Feasibility of Welfare-Oriented Measures to Complement the National Accounts and Balances," (E/CN.3/477), prepared February 1975 by Christopher T. Saunders, University of Sussex, for 19th Sess., 75 p.

provided international comparative data and summaries of general utility. An ILO official published a thoughtful review of the uses of social data for planning.[18] World Tables 1976 has just been published by the World Bank, and the data therein is also available to analysts on computer tape.[19]

The international agencies have absorbed much of the costly burden of data generation for the developing countries because the donor community requires such information to guide development assistance policy. There does not as yet appear to be an equally active interest in having social data among planners and policymakers in LDCs.

B. What do AID and its overseas missions want? Two AID projects for data generation in the Philippines and El Salvador, to be reviewed briefly, have as one central purpose generating interest in data on the poor and the quality of their lives among planners and policymakers in their respective countries. With these projects the overseas missions of AID have already begun to respond to the Congressional mandate for increased information on progress toward reaching the poor majority.

1. The Philippines. A Project Review Paper (PRP) dated 2 Nov 76 requests funding approval to "develop the baseline data, progress

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[18] R. V. Horn, "Social indicators for development, planning and analysis," International Labour Review 111, 6, June 1975, pp. 483-506.

[19] Published for the World Bank by Johns Hopkins University Press, Baltimore and London 1976, 552 p. Data included cover the period 1950-73. Section IV presents the social indicator data.

indicators and selected impact measures needed to gauge more effectively the contribution of AID-funded projects towards the achievement of certain desired development objectives in the Philippines, particularly as they relate to improvements in the economic and social welfare of the poor, and the increased participation of women in development" (PRP, p. 2). Over a three-year period, existing data will be culled and analyzed and new information will be generated as necessary by sample surveys in cooperation with local Filipino institutions. The AID mission would not be satisfied with indicators alone as information must be "useful in establishing measurable linkages between project outputs and overall development goals." The Philippines is in fact among the most advanced of the developing countries with AID programs in terms of the quality and quantity of social indicators. However, there has been little effort directed to establishing the link between the observed levels on the indicators and specific government programs. The economic and social impact analysis in the Philippines will include measurement of the progress criteria and development of techniques for estimating the impact of specific projects and government policies.

2. El Salvador. Over the three-year period, 1977-79, the AID mission in El Salvador plans to support a multi-purpose household survey program which will provide data for planning and evaluation of development policies and programs. The justification for this data-generation project rests upon its potential utility in judging AID activities in support of bilateral programs with the Salvadoran government:

> During the next three years the GOES (Government of El Salvador) and USAID will be planning and initiating ambitious new programs in the areas of agriculture, population, health, nutrition and education. If these programs are not founded on reliable basic information about the people to whom they are directed, a great deal of time and resources are going to be wasted. If there is no way of measuring the effects of development programs and policies on the target group, they cannot be adjusted to assure achievement of desired results (PRP 519-0176, 16 Dec 75).

The PRP goes on to identify certain problems in evaluating AID and government development strategy:

a) Death rates, already low, may fall further as the youthfulness of the population increases; the number of women in their fertile years has been increasing, thus possibly raising fertility. Impact of the family planning program on population growth is difficult to judge, and there is little up-to-date information on important determinants of fertility, such as age at marriage and contraceptive user rates.

b) Between 1961 and 1971, the measured unemployment rate rose from 5 to 13 percent and may have risen to 20 percent by mid-74. Yet no reliable measures exist on unemployment rates since 1971, or even whether the apparent trend was a statistical artifact of changed definitions of unemployment. Naturally, there is no way to judge the impact of public-sector programs initiated under the four-year plan, 1973-77. "Ongoing labor force surveys will be essential to an understanding of how well the country's development plans are coping with unemployment, and it should lead to better and quicker methods to resolve these problems" (PRP, p. 16).

c) Existing income distribution data are unreliable; a benchmark figure is required to begin with so that statistically significant measures of change can be determined. These changes in turn must be analyzed to determine how the distribution of income in any given year is related to the demographic structure of the population, e.g., the fact that younger workers can be expected to have lower earnings than older workers in a given year, even though over the whole life cycle these differences would even out.

d) There are 200,000 families in El Salvador owning farms of one hectare or less. Virtually nothing is known of the characteristics of these poorest of the poor. A household sample survey with farm households proportionately represented in the sample universe will provide a much needed measure of the direction and magnitude of agricultural income over time.

e) Planning for a National Nutrition Strategy requires data on pre-school children and prenatal and lactating mothers. Specific rounds of the multi-purpose household survey can be directed to study of food consumption, morbidity and other features of the health ecosystem including water supply and access to medical facilities.

The details of these plans from two AID missions indicate that they (and the governments with which they cooperate) will not be satisfield with a 'social indicators project' that measures social conditions

and monitors change without reference to the causal links to specific policies and programs.[20]

3. Population Impact Legislation. Additional legislation proposed as a new Section 117 of the Foreign Assistance Act may require AID to give specific attention to the links between population growth and project design and execution. S.3461 states in part, "To the maximum extent consistent with the principles set forth in section 102, projects in other development fields should be designed to reduce population growth and to maximize recognition of the benefits of planned family size." Assuming this proposal is introduced into law AID must not only measure population growth, it must "build motivation for family planning into programs in other fields such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to the urban poor."[21]

The simplest measure, and in some respects the most complete, of the impact of policy on the well-being of the poor, is the growth of their income. Measuring income and its change is no simple matter, particularly for the poor. Some of the problems are discussed in the next section.

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[20] US AID/Thailand is atttempting to develop interest in systematic social data in that country. See William G. Duncan, "Social Indicators for Thailand: Recommendations on Concepts and Data," mimeo. report to AID and USOM/Bangkok, Washington DC, July 1976.

[21] S.3461 was introduced on 20 May 1976 by Senator John Sparkman (D-Ala.) for the Administration.

C. Measuring Income Among the Poor. It has become commonplace among students and practitioners of development to remark on the inaccuracy, unreliability and incomparability of income statistics for poor countries, and especially for the poor people who reside in those countries. But just as commonplace has been the tendency to use what data are available in the hope that bad as they may be, no serious errors of decisionmaking would emanate from using them. A comparison of widely-available data with more carefully-formulated figures shows that major errors about the geography of the poor can inhere in the use of available data.

Two estimates of per capita product for each of ten countries appear in Table 1. The data are drawn from a recent study by Irving Kravis, et. al.. A System of International Comparisons of Gross Product and Purchasing Power (1975). The study compares income and product generated in ten countries in terms of local and international prices of locally-purchased market baskets of goods and services. The large differences between these two measures for the poorest countries is indicative of probable inaccuracy of income estimates for poor countries and the poor people who live in them.[22] The 'correct' evaluation of Indian per

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[22] Comparing urban to rural incomes is also fraught with the problem of whose prices to use in estimating the value of goods consumed and produced. A large part of the apparent per capita income growth of Latin America (and some other rapidly urbanizing societies among the LDCs) from the mid-50s to the early 70s could be accounted for by a shift of consumers from low-price rural areas to high-price urban ones with little or no real increase in consumption or welfare. See Simon Kuznets,"Problems in Comparing Recent Growth Rates for Developed and Less Developed Countries," Economic Development and Cultural Change 20, 2, January 1972, 185-209.

Table 1

Alternative Estimates of GDP Per Capita, Ten Countries, 1970
U.S. Dollars

Country	Conversion at Exchange Rates	Valuation at International Prices	Ratio
Kenya	$ 144	$ 275	1.91
India	98	342	3.49
Colombia	329	763	2.32
Hungary	1,037	1,935	1.87
Italy	1,699	2,198	1.29
U.K.	2,143	2,895	1.35
Japan	2,003	2,952	1.47
Germany	3,080	3,585	1.16
France	2,902	3,599	1.24
U.S.	4,801	4,801	1.00

Source: Kravis, et. al., A Comparison. . . (1975), Tables 1.2 and 1.3, pp. 7, 8.

capita GDP is $342, instead of the mere $98 arising from exchange-rate comparisons.

India by exchange-rate comparisons has a per capita product a third lower than that of Kenya, whereas the use of international prices places India's per capita product 25 percent above that of Kenya. This difference derives in large measure from the relatively low price of rice in India when compared to other countries considered in the Kravis study (Kravis et. al., p. 241). The implications of such a change of relative position would have enormous import for the estimate of the number of absolute poor in South Asia and Africa.

Even within individual countries it is far from easy to know how many poor there are, whether their numbers are growing, and whether they are becoming worse or better off. In a recent review of the data on India, Robert Cassen found that available data sources are subject to conflicting interpretations. The National Sample Surveys, for example, have problems with estimates of family size, income in kind, choice of price deflators over time, etc.[23] In his effort to judge whether welfare has improved in India, he turned to two other sources of information. Mortality levels have not fallen, suggesting that welfare has not improved (Cassen, 1975, p. 56 for data); a study of food consumption by Michael Lipton and quoted by Cassen indicates conditions for the poor have worsened:

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[23] Robert Cassen, "Welfare and population: Notes on rural India since 1960," Population and Development Review 1, 1, September 1975, pp. 36-7.

> In India, from 1949-1950 to 1968-69, average daily calorie consumption rose from 1700 to 1940 -- by 14 percent, while income per person rose by about 40 percent. If the rise in income had been equally distributed (i.e., if all incomes had risen by 40 percent) a rise in food consumption of 32 percent could have been expected." . . . [This finding] adds crude support to our general belief that income distribution has not improved much, and may have worsened. It is unlikely that the huge increases in food prices in the last 15 years have been caused by increases in the incomes of the poor. (Cassen 1975, p. 41)

In a country containing a third to perhaps half of all the very poorest people in the world, it is not possible to offer a satisfactory picture of their numbers, condition or progress. Only very indirect evidence seems able to encompass the dimensions of poverty. The data situation is probably even worse in other countries which are home to the very poor.

Marcelo Selowsky used the Kravis et. al. data on Colombia to compare what percentage of the population would lie below a poverty line of US $150. Official exchange rates would indicate that 44.8 percent of Colombia's population are below the poverty line, whereas using Kravis international prices only 15 percent would be below it.[24]

These enormous differences might reasonably cause one to reject a per capita product indicator of absolute poverty until such time as better data have been formulated for comparing countries. Certainly

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[24] Marcelo Selowsky, "The distribution of public services by income groups, a case study of Colombia, Part I (electricity, water, sewerage)," mimeo., Development Research Center, World Bank 17 Aug 76, Table V.

policies of international lending could not be based on small changes in poverty indices so crudely measured.

The World Bank has recently considered several alternative ways of defining the poor. World Tables 1976 arranges data for developing countries by income group based on 1972 GNP per capita in 1972 U.S. dollars: There were 36 lower income countries with less than $200 per capita GNP; 27 middle income ($201-375), and 35 higher income above $375.[25]

This procedure defines countries by income level but not persons or families by income level; data on size distribution of income for each country are needed to estimate the number of poor people who would fall below defined poverty lines in the country. National accounting systems in poor countries rely much more on estimates of production than on income and expenditures to get aggregate output. Production data can be drawn from factories and enterprises and do not depend on specific knowledge of household income and expenditures; thus knowledge of aggregate product does not translate easily into knowledge of the distribution of income and consumption. Household survey data are needed to estimate income distribution. Such data are not gathered in several poor countries; in those countries which do gather data, survey results have

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[25] See World Tables 1976, p. 548, for a listing of countries by income group. It may be worth reporting that the group of lower income countries had the lowest annual growth of GDP per capita, 1965-73 at 0.9 percent. The middle-income countries grew at 3.2 percent annually, the higher, at 4.1 percent, so that inequality among the poor was growing in the past decade: Oil producers grew even faster at 5.4 percent (p. 392, Table 1).

been shown to be inaccurate in important respects. Currently, one can more readily identify poor countries than poor people, although even countrywide estimates are apparently fraught with error.

Thus the World Bank staff has given primary attention to the analysis of household income and expenditure data in the search for more accurate measurement of absolute poverty. One approach currently being explored is to estimate the income needed for a minimum diet (plus additional nonfood expenditures) and to determine how many people had income too low to purchase the necessary quantity of food.[26] Webb used this approach to estimate the extent of poverty in Lima, other urban, and rural areas of Peru. Unlike Orshansky who assumed that nonfood costs in the US were double food costs for minimum consumption, Webb made the less restrictive assumption (drawn from a budget study) that nonfood costs were half of food costs in Lima and one-fourth of food costs in rural areas. The percentage of population below the poverty line calculated in this manner was 8 percent for Lima, 15 percent for other cities and towns, and 50 percent for rural areas, with the national average being 29 percent.[27]

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[26] This technique was first applied to US household expenditure data in an effort to provide a measure of absolute poverty: The poor were those who needed to spend one-third or more of their income to buy a USDA-approved minimum daily requirement of food. See Molly Orshansky, "Counting the poor: Another look at the poverty profile," Social Security Bulletin 28, 1965, 3-29, and "How poverty is measured," Monthly Labor Review 92, 1969, 37-41.

[27] Richard Webb, "On the statistical mapping of urban poverty and employment," Bank Staff Working Papers No. 227, Washington DC, January 1976, pp. 32-38.

Ferber and Musgrove, in an unpublished paper, estimated the numbers below certain poverty thresholds in several Latin American cities and find that a fairly small share of households are unable to buy the minimum diet.[28] Thus their results are consistent with those of Webb for Lima. If, however, the US poverty definition be applied, three-quarters of the population of Medellin and two-thirds of Bogota, would have income below the poverty line. These observations underline the importance of poverty definitions used and the potential paradoxes of international comparisons.

Another approach, for which no data have been published, is to examine the income and expenditure of households in the twentieth percentile of income as found in budget studies. These households' consumption is not assumed to be adequate; additional food equivalent to that being purchased, and hence not an unacceptable diet, is added to yield FAO minimum caloric and protein intake. The resulting food intake, to which is added an estimate for nonfood expenditures (different in urban and rural areas to adjust for expenditures on housing) is then taken as the minimum necessary consumption: All families falling below that cutoff are then defined as living in poverty. This approach makes possible quite different cutoff lines for the poor in different countries. Families in the twentieth percentile in Bangladesh are probably much poorer in absolute terms than families in the twentieth percentile in

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[28] Robert Ferber and Philip Musgrove, "On the identification of poverty households in Latin America," mimeo., ECIEL (Program of Joint Studies of Latin American Economic Integration, The Brookings Institution, n.d.), pp. 28-31.

Colombia. Carmel Chiswick of the World Bank staff reports that in carrying out this exercise in Thailand, the estimates of the number of poor, in both urban and rural areas, does not yield results significantly different from those derived from the much simpler per capita income data. What she calls a cost-of-living poverty line finds about 10 percent of the urban population and 20 percent of the rural in poverty -- somewhat lower percentages than would be derived by setting the poverty cutoff at $50 per capita annual income, as in Chenery et. al., Redistribution with Growth (1974, p. 12).[29] The Thai data indicate that the twentieth percentile families in rural areas spent about 65 percent on food; those in urban areas about 50 percent, a major source of difference being house rents in urban areas.

If studies in other countries reveal some constancy in the food share at that or a similar income percentile, there may be some consideration given to defining poverty by the share of income spent on food. Such an indicator, being relatively easy to determine, and combining elements of both relative and absolute poverty might have some advantages over per capita income and other measures. However, the World Bank staff are still considering alternative definitions of poverty that have operational significance in terms of available data and adequate theoretical justifications.[30]

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[29]Based on interview with Carmel Chiswick, Development Research Center, World Bank, 29 October 1976. Ms. Chiswick has written "Measuring poverty," World Bank Staff Working Paper No. A-1, Washington DC 1976, which deals with some issues in measuring poverty in Bangkok.

[30]These observations drawn from interviews with Jacob Meerman, Development Economics Department; Carmel Chiswick, Development Research Center, and John English, Urban Studies, all of the World Bank, on 29 October 1976.

D. Some General Problems Common to All Indicators. Indicators may be judged, with respect to their potential utility, on the dimensions of accuracy, pertinence, timeliness, costliness, sensitivity and specificity to policy needs.

1. Accuracy. From some points of view, wide tolerance of error of estimates of indicators is acceptable. Whether infant mortality rates are 200 or 250 per thousand live births may not matter much if the policy objective at initiation of a health and nutrition program is simply to lower the rate quickly and substantially. But eventually policy must also cope with whether feeding programs, preventive health care, curative services or potable water supplies is having the greatest effect on infant mortality (or whether a particularly judicious combination is most effective). More advanced programs require that small changes in infant mortality be measured accurately along with the program inputs which alter it.

A group at the University of North Carolina recently reviewed findings on mortality from several well-designed demographic measurement projects in developing countries and found that "reporting of deaths by retrospective questioning could be as deficient as fifty percent."[31] Retrospective questioning in small surveys is among the best methods

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[31]Arjun Adlakha, Joan W. Lingner and James R. Abernathy, "Methods of measuring mortality for developing countries," APHA Meetings 17-21 Oct 1976, Miami Beach (mimeo., International Program of Laboratories for Population Statistics, Department of Biostatistics, School of Public Health, University of North Carolina, Chapel Hill), p. 9.

currently available in developing countries for determining mortality and fertility. Other estimating techniques, such as the Brass-Sullivan method, dual record systems and randomized response technique for questioning, are able to reduce inaccuracy but are very costly. Moreover, the reduction of error by these methods is apparently not complete, nor is there an easy formula for estimating the remaining error. Since development programs are committed to changing mortality, there must be attention to measurement of both levels and trends, the latter being particularly difficult to interpret if the methods of measurement are changing or improving. The enormous underestimates of mortality found among these best research programs leave too much room for the occurrence of real improvements in mortality conditions over several years that could go unrecorded because improved statistical procedures over the same period capture more mortality events despite the fact that real mortality is falling. Some of the special problems associated with infant mortality, an important component of general mortality, are discussed below.

2. Pertinence. Social indicator data may appear to be more than they really are: Elements left out of measurement can move in directions opposite to elements measured so that real changes are quite different from those reflected in statistics. This has been called the horse-rabbit stew problem: The rabbit contribution to the soup can be accurately measured, but it is the unmeasurable horse that dominates the flavor. Two examples may be given.

A recent World Bank study of the incidence of malnutrition examined how higher income affects nutritional status. The purpose was to forecast nutritional improvements with and without specific nutritional programs but with general improvements in the standard of living measured by per capita income.

> An analysis of a comprehensive nutrition survey of low income families in Calcutta shows that the nutrition of all age groups improves with rising incomes. Although the nutrient-income elasticities for young infants are higher than for adults, this does not mean that infant undernutrition is resolved with improvement in income. In fact, the opposite can be true if it is assumed that higher incomes are achieved partly through the mother obtaining employment, with the consequent partial sacrifice of breast feeding. . . . Calculations about the loss of breastfeeding and the cost of replacing the equivalent nutrients suggest that about 50 percent of the mother's earnings would need to be spent on the infant for the sheer maintenance of its nutritional health. Clearly, higher per capita income not only may fail to reduce but, on the contrary, may increase infant undernutrition.[32]

Since most family budget studies leave breastfeeding out of account, and because in the instance of infant feeding the increase in income and consumption itself causes a decline in breastfeeding, the measured improvement is not really pertinent to a fundamental issue of malnutrition.

There are complex and poorly-understood relationships between unemployment as measured by developed-country definitions (Are you looking for work and unable to find it?), unpaid family labor and the allocation of time and resources in the LDC household. A study based

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[32]Shlomo Reutlinger and Marcelo Selowsky, "Malnutrition and Poverty," World Bank Staff Occasional Papers 23, Johns Hopkins Press, Baltimore 1976.

on US data found that the contribution of unpaid household work was equal to over 40 percent of GNP in both 1948 and 1969, and was about 10 percent in Japan where women's wages and labor force participation rates are lower than in the US.[33] Growing awareness that time is not sharply divided between work and leisure -- and perhaps less so in LDCs than in developed countries -- leads to a questioning of the pertinence of employment data, no matter how accurately measured, when applied to rural and urban informal sectors. Elder children, although unemployed and staying at home, may be using their time productively by investing in the mental growth of younger siblings, may free parents for more time in market work and may even improve their skills by work at home in an apprenticeship provided by parents.[34]

Homogeneity of work experience -- when most people engage in agriculture and petty trade -- reduces the pertinence of employment, mobility and occupational indicators. Critical features of the system are those that its members already identify by sanctifying them with ritual -- birth, passage to adulthood, identification of a work role, marriage,

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[33]UN Statistical Commission, Economic Statistics, System of National Accounts and Balances: The Feasibility of Welfare-Oriented Measures to Complement the National Accounts and Balances, 19th Sess., New Delhi, 8-19 Nov 76 (E/CN.3/477, 17 Feb 76), pp. 18-19.

[34]The greater sibling-training experience of the early-born children in families has been offered as part of the explanation for observed differences by parity of performance on IQ, SAT and other intelligence tests. See R. B. Zajonc, "Family Configuration and Intelligence," Science 192, 16 April 76, pp. 227-36, for a review of the evidence from developed countries.

birth of one's own children and death. Following the lead of these societies themselves in deciding what to measure may prove as sure a guide to pertinence as the development of complex modeling efforts. The Physical Quality of Life Index (PQLI) developed by Morris D. Morris follows this spirit.[35]

3. Timeliness. Few data can be generated through procedures sufficiently accurate to command respect within the time limits imposed on policymakers. John Hunter in his book on Colombia told the story of a Minister of Agriculture who called the statistical office in his Ministry asking for the quantity of potatoes produced annually in Colombia. Two days later the office sent him a plan for conducting a sample survey which would produce the desired information within six to twelve months. Whereupon the Minister canceled his request for the data and called his wife asking how many pounds of potatoes she bought the previous week; after judicious multiplications, he produced the ministry's estimate of potato consumption (and production) in less than half an hour. The biases in such a procedure obviously vitiate the result -- even if by some chance it were correct. Some data are not worth having, no matter how easy they are to get.

There are data which are available in a timely fashion and which can be used to assess conditions among the poor. Foremost among these are

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[35] Morris David Morris (Overseas Development Council), "A Quality of Life Index," mimeo. Washington DC, December 1976. A publication by ODC on the PQLI, an unweighted index of infant mortality, life expectancy and literacy, is anticipated. There may be other, superior ways of developing indicators directly responsive to the culturally determined important rites and phases in the rhythm of life.

information on prices and the cost of living on the one hand, and money wages among unskilled workers on the other. These separate data sources can be brought together to assess trends in real wages. Wages are the major source of income among the urban poor employed in the modern sector. Trends in real wages among wage earners may also be indicative of income movements for those in urban services and petty trade. Even the economic status of the unemployed may be governed to some extent by movements in the cost of living indices. Thus these data, when properly interpreted, offer timely information on real income, employment issues and income distribution.[36]

Schuh and Thompson suggest that the timely ways to measure government commitment to agricultural productivity improvement must include attention to expenditures on agricultural research, funds budgeted to agricultural credit and other support to the sector, and the presence or absence of policies such as food price controls, import and export embargoes on food and discrimination for or against the farm sector.[37] There is so long a lag between government commitment and visible change that some means of measuring commitment directly must be devised for the timely assessment of government action. For example, a five to seven

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[36] Miguel Urrutia and Albert Berry, La Distribucion del Ingreso en Colombia, La Carreta, Medellin 1975, pp. 107-48, use real wage data to assess trends in distribution.

[37] G. Edward Schuh and Robert L. Thompson, "Assessing Progress in Rural Income and Agricultural Productivity," mimeo., Department of Agricultural Economics, Purdue University, November 1976.

year delay comes between increased expenditures on agricultural research and increases in agricultural output due to those expenditures.[38]

4. Costliness. There has been no aggregate assessment of the cost of improving the quality of data on a minimum number of development indicators needed for policy guidance. However, several projects are underway or being considered which tell something of the costliness of such an enterprise. For example, a cooperative project between the Philippine Government and AID would spend $4 million over a three-year period. A multi-purpose household survey in El Salvador designed to develop similar information would cost $2 million. The Economic Commission for Africa budgeted about $0.44 million annually for an average-sized survey organization in each of the Sub-Saharan countries.[39] These examples indicate that the cost of generating useful information is not trivial. Much less easy to determine is the cost-effectiveness of such expenditures as measured by their utility as guides to policy. One multipurpose household survey undertaken for research purposes in Africa was evaluated from the perspective of its possible replication in additional countries. The financing agency decided that the cost of repeating the survey was too great for it to support, despite the considerable value placed on the information which could be gained.[40] The Government of Pakistan is

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[38]See James K. Boyce and Robert E. Evenson, Agricultural Research and Extension Programs, Agricultural Development Council, New York 1975.

[39]United Nations Statistical Commission, "African Household Survey Capability Programme, Report of the Secretary-General," 19th Sess., New Delhi, 8-19 Nov 76, Annex, p. 3.

[40]Based on interview with Mr. Robert McPheeters, World Bank, Sept. 1976.

currently considering several sample survey approaches for gathering nutrition, fertility, mortality and labor-force participation data. Cost and information quality are being taken into account in reaching a decision. The alternatives which might be weighed in deciding how to generate information are rarely conceived as tradeoffs between cost and accuracy, timeliness and completeness, and the other choices which face those who design data systems. The United Nations System for Social and Demographic Statistics (SSDS) offers an excellent format for a complex data set. No estimates of the cost of putting the data together have been made public, but one imagines that SSDS would cost a lot of money. Those who allocate funds to data generation and must choose between better data and more funds for action programs must decide how much is too much. The decision of the US Congress to commit up to one percent of program funds to evaluation for several departments of the US government has resulted in large expenditures:

> In the United States, by the beginning of the 1970's, there were about 300 new [evaluation] studies begun each year with direct Federal support and with average budgets of about $100,000 each. By now, the number of evaluations started each year has probably doubled, and dollar costs have risen markedly. While not usual, studies may have budgets as great as 10 to 20 million dollars, as in the case of ongoing evaluations of compensatory education in the US. Evaluations in other countries also have increased dramatically in number and cost. The aggregated assessments of family planning programs in Asian countries, supported by both national governments and international groups, represent one of the most expensive and extensive set of evaluation efforts ever undertaken. Evaluation research in Latin America on the relations between

> nutrition and cognitive development also is in the multi-million dollar category.[41]

Although the amounts of money are large, if they save money that would otherwise be committed to ineffective programs, evaluation and performance assessment can more than pay for themselves.

5. Sensitivity to Policy Needs. Aggregate indicators paint the national picture in broad brush strokes and are hence applicable only to broad national policies -- the family planning program, cheap food, an incomes policy, price controls on key wage goods to hold down the cost of living of the poor majority. A good deal of theorizing is needed to tease out the long and tenuous connecting threads between general policies and the resulting socioeconomic conditions.

Perhaps better results can be anticipated with the study of natural experiments: Operating programs for fertility control, productivity improvement, income redistribution, mortality reduction and employment creation can be studied with experimental and quasi-experimental designs to see what impact they have had -- intentionally and unintentionally -- on the progress criteria discussed

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[41] Howard E. Freeman, "The Present Status of Evaluation Research," mimeo, UNESCO, Paris, August 1976, p. 4, notes deleted. This paper and the Rossi and Wright paper cited below were prepared for a September 1976 UNESCO conference on evaluation. A further evaluation conference to take place in Central America in 1977 under sponsorship of INCAP (Institute for Nutrition for Central America and Panama) is in the planning stages with Professor Freeman playing a major role.

here.[42] In applying evaluation techniques to specific projects the gain in specificity may be purchased at the price of irrelevance to other projects and settings. Perhaps for that reason there is an irresistible urge to limit the expense of studies of natural experiments to some small fraction of the project cost -- even though a study which determined the reasons for success or failure might lead to considerable savings on future projects. Among the significant projects that have been evaluated are the educational impact of Sesame Street on Mexican children.[43]

6. Specificity to Policy Needs. In a recent review of National Science Foundation support of research in the social sciences, a committee found that applied research rarely achieves its policy-impact objectives.[44] At issue was how research does impact on policy. The sponsoring-agency staff seemed to believe that identifiable policymakers had to be reached with specific new information which would then form the basis for new decisions.

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[42] On experimental design see Riecken and Boruch, ed. (1974) esp Ch. on quasi-experiments and with special applications to AID, Boruch and Riecken 1974, "Applications of randomized experiments to planning and evaluating AID programs" (AID/cm/ta-c-1055). For a comprehensive listing and analysis of population programs see Roberto Cuca and Catherine S. Pierce, "Experimentation in Family Planning Delivery Systems," Aug. 1976.

[43] See Peter H. Rossi and Sonia R. Wright, "Evaluation Research: An Assessment of Current Theory, Practice and Politics," mimeo., UNESCO Division for Socio-Economic Analysis, Sector of Social Sciences and Their Applications, Paris, September 1976, for comments on this and other evaluation studies.

[44] National Research Council, Committee on the Social Sciences in the National Science Foundation (Herbert A. Simon, Chairman), Social and Behavioral Science Programs in the National Science Foundation, National Academy of Sciences, Washington DC 1976.

The review committee, headed by Professor Herbert A. Simon, asserted an alternative information-diffusion model of policy impact. Investigators attack a problem and generate new information about it and new ways of analyzing it. The new information and perspective then diffuses through informed public opinion until the policymakers join the public in looking at the world differently. (The 'publics' involved may of course be quite small -- being interested persons on such matters as the population problem, the energy crisis, the environment, the inflation-employment tradeoff, etc.) With this latter model of information transmission, there is less need to specify policy research needs in terms of requests of policymakers narrowly concerned with an issue. General information on indicators of progress may inform the public about a problem (high fertility, inequality, unemployment). Basic research, conducted under conditions determined by independent investigators, can lead to a gradual specification of real and difficult policy choices which, if to be enacted, must be understood and supported by interested members of the public.

This knowledge-diffusion model guided studies by Caplan and Rich on the uses of social science research in the US government. They found that "knowledge produces effects, not a single effect; and policy is not made, it accumulates."[45] Eighty-two percent of policymakers they interviewed said that social science research had influenced policy;

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[45] Robert F. Rich and Nathan Caplan, "Policy Uses of Social Science Knowledge and Perspectives: Means/Ends Matching versus Understanding," mimeo., OECD Conference on Dissemination of Economic and Social Development Results, Universidad de los Andes, Bogota, June 1976, p. 2.

among 350 examples of policies influenced were the decision not to build the SST, election of particular diseases for intensive research funding and the Environmental Protection Act of 1969. "However, the information inputs did not serve to guide specific actions; instead the importance of this knowledge to the policymaker lies in its ultimate integration into his entire perspective on a problem."[46] Thus to influence policy, information on progress criteria need not respond specifically to any one policymaker's needs; it must rather contribute to the general stock of knowledge about pertinent policy issues. General indicators contribute to the ecosystem of ideas and hence influence indirectly the course of policy decisions. Caplan and Rich found strong interest among Department of State policymakers in having social indicators on the quality of life in the US and other nations.[47]

IV. Problems with Five Progress Criteria. As there are problems common to all indicators of the well-being of the poor in developing countries, so there are some problems peculiar to measurement of agricultural productivity, infant mortality, population growth, unemployment and income distribution. No list of indicators can be perfect: The competing advantages of comprehensiveness and simplicity make perfection

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[46] Ibid., p. 8.

[47] Ibid., pp. 15-16. Other works by these authors include Nathan Caplan, et. al., The Use of Social Science Knowledge in Policy Decisions at the National Level, Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, Ann Arbor 1975; and Robert F. Rich, "Uses of Social Science Information by Federal Bureaucrats: Knowledge for Action versus Knowledge for Understanding," mimeo., Midwest Political Science Association Meeting 1976, Chicago.

a logical impossibility. Although these five indicators are reasonably satisfactory, one might wish to add such criteria as nutritional status, schooling and educational attainment to a more complete list of indicators of well-being.[48] Some would argue that attention to income, particularly the income of the poorest strata should take precedence over any specific indicator since income can be used to purchase preferred combinations of good health, calories and numbers of children born to the family.

From some points of view, analysis of the interactions between the five progress criteria to be reviewed below is an important exercise in understanding the process of economic development. The links between income distribution and employment on one hand, and mortality and fertility on another are particularly rich causal connections for careful study. In this section, some of those links will be explored, but the principal focus is on the problems and prospects of measurement for each of the five criteria.

A. Agricultural productivity. In the Congressional legislation, agricultural productivity is linked to a specific mode of goal achievement "through small-farm labor-intensive agriculture." Moreover, it is not

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[48] Mr. S. Chakravarty, Planning Commission, Government of India, presents a strong argument for inclusion of educational data in a system of social and demographic statistics for developing countries. His work appears as a contribution to the United Nations Statistical Commission 19th Sess. at New Delhi, "A Draft Framework for the Integration of Social and Demographic Statistics for Developing Countries," (E/CN.3/490, 2 April 1976), pp. 20-24.

labor productivity or the productivity of capital that is to be promoted but "productivity per unit of land." Most economists would be concerned with improving total productivity, i.e., the productivity of all inputs taken together. That is the position adopted by Schuh and Thompson in their review of progress assessment in agricultural productivity.[49] Among very small owner-occupied production units (dwarf holdings, as they are sometimes called), increasing the productivity of land may not be a bad objective. Nonetheless, "Given the objective of raising per capita income, labor productivity in agriculture is a more meaningful indicator of agricultural progress than yield per hectare."[50]

In a comprehensive review of rural productivity in developing countries, Berry and Sabot[51] conclude that the observed higher productivity of labor on small farms is a result of a dual labor market. Workers on their own small farms produce more (per land unit) because they are willing to work harder and longer -- not because small farms are naturally more productive.

Differential productivity between small and larger farms is intimately linked to the use of time by the household. Recent investigations

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[49] Schuh and Thompson, "Assessing progress in rural income and agricultural productivity," argue that "among productivity indices as indicators of agricultural progress, only [total factor productivity] is meaningful" (pp. 20-21).

[50] Schuh and Thompson, op. cit., p. 18.

[51] Albert Berry and R. H. Sabot, "Labor market performance in developing countries: A survey," World Bank Development Economics Department, June 1976, pp. 94-95.

of rural household behavior in the Philippines[52] have divided the temporal resources of the household into time devoted to market work, time spent on household work and residual time (leisure).[53] Analysis of this three-way choice has focused on women's labor market participation (as a potential second-income earner) or unpaid family laborer. Surveys reveal interesting variations in men's use of time as well. For example, Oscar Lewis found in his classic, Life in a Mexican Village, that hoe culture on inferior communal lands took much more time than plow culture on privately-held plots. Workers on the communal lands "generally rise at 4:00 a.m., travel about two to three hours to reach their fields, and return home a few hours later than plow culture farmers."[54] Not only is hoe culture unproductive, "one of the most striking differences between the two systems is the much greater amount of time necessary in hoe culture."[55] The variations in time use in the Tepoztlan of 1947 is but

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[52] Among the several works on this topic, all of which draw on the Laguna Survey data, see the works by Elizabeth King, "Time allocation in rural Philippine households," Discussion Paper 76-12, 1976, and Barry Popkin (1976). Several other studies are available in draft or are in preparation (see below footnote 48).

[53] This trichotomy is explored in a recent paper by Reuben Gronau, "Leisure, home production and work -- the theory of the allocation of time revisited," NBER Working Paper Series No. 137, Stanford CA, May 1976. A lighter but thought-provoking treatment (Why do modern business men have so little time for the traditional cinq a sept affairs?) is offered in the excellent short book by Staffan B. Linder, The Harried Leisure Class, New York, Columbia University Press 1970.

[54] Oscar Lewis, Life in a Mexican Village: Tepoztlan Restudied, University of Illinois Press, Urbana 1963, p. 132.

[55] Ibid., p. 155.

one example of the interaction of time, technology, and poverty. Variations in agricultural productivity, farm size, and choice of technology must take full account of the allocation of time within the rural household if warranted conclusions for policy are to be reached. The fragmentation of dwarf holdings in many countries into widely separated tiny strips of land helps the small farmer spread out his risk at the expense of spending much time walking from one plot to another. Walking time is then an important production cost. On-farm variation of time inputs appears sufficiently important to deserve careful attention since temporal resources are the major input into small-farm agriculture.[56]

To date, however, very few rural household surveys have been conducted which would yield a clear picture of time use. Some earlier studies summarized by Alexander Szalai and associates concentrate on urban areas and more developed countries.[57] In July of 1976, the Agricultural Development Council held a meeting at which some time-use studies currently in progress were discussed, including the Laguna Survey in the Philippines; the Bostwana multi-round household survey; INCAP studies in Guatemala, and the Malaysian household survey. An earlier,

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[56] In his paper for the UN Statistical Commission, Professor Chakravarty maintains that time-use data while useful, should have low priority in developing social and demographic statistics for developing countries.

[57] Alexander Szalai, ed., The Use of Time, The Hague, Mouton Co. 1972, includes comparative chapters on fifteen studies in twelve countries, only one of which (Peru) is among the LDCs. None of the studies cited dealt with rural time use.

The United Nations SSDS project places considerable emphasis on collection and analysis of time-use data.

planned study along similar lines in Northeast Brazil produced a small body of pilot-survey data but further field work has been postponed. Time-use studies in rural areas of LDCs, mostly by anthropologists, are few and incomplete when compared to the importance of such data for policy formulation.

A recent study by the ESCAP Committee on Population reviews some of the possible relations between agricultural productivity and population growth:

> The growth of population will alter the supply of land in a number of ways: The pressure of population may induce migration to remote areas and the placing of new lands under cultivation. On the other hand, under pressure of population, new housing, roads and other facilities will subtract from the already insufficient amount of land now under cultivation. Furthermore, exploitive practices of forestry and land management in response to population pressures will result in continued loss of fertile top soil through erosion.
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> .....
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> In 1970 a study of selected ESCAP countries indicated that irrigation requirements would amount to 11.5 per cent of mean annual runoff. By 1990 this requirement will have nearly doubled to 20.4 per cent of mean annual runoff.[58]

The interrelationships discussed here are exceedingly complex, particularly the specific role to be accorded to alternative rates of population growth in the steady but, in some respects, immutable running down to the sea of ecological systems in which man claims an ever larger niche. The productivity issues for agriculture should be linked to larger features of

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[58] United Nations Economic and Social Commission for Asia and the Pacific, Committee on Population, "Interrelationship of population change and environment, with special reference to the rural sector" (Item 4 of the provisional agenda), Interrelationship of Population Change and Economic and Social Development (E/ESCAP/POP/1/L.1, 7 May 1976), pp. 14-15.

national and (as with the delicate matters of the waters of the Ganges river system) international ecosystems. These issues are particularly pressing in South and Southeast Asia because of high current levels of population density and the persistent knocking at the door of environmental decay which that density implies.[59]

Agricultural productivity is closely linked to the problem of malnutrition in developing countries. A recent World Bank study has restudied the malnutrition problem and reexamined data developed several years ago by the United Nations Food and Agricultural Organization on food deficits and malnutrition. The new Bank study estimates

> that 56 per cent of the population in developing countries (some 840 million people) had calorie-deficient diets in excess of 250 calories per day. Another 19 per cent (some 290 million people) had deficits of less than 250 calories per day.[60]

The earlier FAO estimates of malnutrition (269 to 314 billion calories deficit) were predicated on estimated deficits by countries or regions of the world. This method of estimating aggregated together both rich and poor in each country and region. The World Bank study analyzes food intake by income groups within countries and finds that the very poor will be undernourished even if assumed nutritional requirements were set as much as ten percent below FAO levels. The estimated aggregate food

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[59]For analysis of an East African case see Barbara Knapp Herz, Demographic Pressure and Economic Change: The Case of Kenyan Land Reforms, AID/PPC/PDA, Washington, December 1974. Investment in the Swynnerton land reform paid off, but continuing population growth seems to be on the way to placing rural Kenya in a low-level equilibrium trap.

[60]Reutlinger and Selowsky, "Malnutrition and Poverty: Magnitude and Policy Options," World Bank Staff Occasional Papers 23, Washington DC 1976, p. 2.

deficit is much larger by these calculations, i.e., between 350 and 488 billion calories per day. The new mid-figure estimate is equivalent to annual production of 38 million tons of food grain -- a figure equal to 4 percent of the world production of cereals in the mid-1960s. Interestingly, the deficits are not distributed the same by regions with the two calculations; for example, the FAO estimate showed Latin America to have no or a small food deficit (and hence no problem of malnutrition) whereas the new estimates place the deficit among the Latin American poor at 32 to 74 billion calories per diem.[61]

The large differences of food-deficit estimates by regions between FAO and World Bank analysts dramatically affect the geography of poverty: Is none of the world's hunger problem in Latin America? Or is as much as 15 percent (74 ÷ 488 = 0.151) of it there? If foreign assistance is governed by alleviation of poverty and malnutrition, the policy question is essential to answer.

Paradoxically, a solution to the world's aggregate food production problem would by no means solve the problem of malnutrition. The shortfall of supply relative to demand may only be on the order of four percent of aggregate demand. Further significant increments in food output might not in any case get to the malnourished without specific nutrition programs for designated target groups.

> Severe undernutrition mainly strikes small children, who need about twice as much protein and energy in relation to overall body weight as adults require. Pregnant and

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[61] Reutlinger and Selowsky, op. cit., Table 9, pp. 3, 25.

> nursing mothers, who also need extra food, form a second nutritionally vulnerable group. Unfortunately, in many cultures a tradition of discriminating against small children and females of all ages in the allocation of family food supplies makes these two groups all the more vulnerable.[62]

Given the specific nutritional problems of children, prenatal and lactating mothers, it is surprising that no systematic survey data have probed below the household level to determine the distribution of consumption within the family unit. If heads of households are consuming their fill and more in poor countries, then the nutritional status of children and mothers may be much worse than even these latest figures on undernutrition would indicate. Concern with the status of women and children argues for careful studies of the intra-household allocation of consumption and work. Small-farm productivity may be purchased by a crushing burden of work on wife and children, a demand for many children (especially sons) and hence frequent childbirth imposed by men who gain in self-employed independence for themselves, despite the loss for children's schooling and possibly even higher family income. Again it must be emphasized that no systematic data bearing on this possibility has come to hand because data are gathered on households rather than individuals.

B. Infant mortality. Infant mortality is usually expressed as a ratio of infant deaths in a given time period to the number of live births in the same period. For many developing countries the rates have

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[62]Erik Eckholm and Frank Record, "The Two Faces of Malnutrition," Worldwatch Paper 9, Worldwatch Institute, Washington DC 1976, pp. 10-11.

declined significantly in the past. Few developing countries were considered by a UN group to have reliable enough data over several decades to warrant publication of statistics.[63] The substantial changes which can occur in this measure make it useful as an indicator of progress in development; however, problems with measurement are so severe that the infant mortality rate must be used with caution.

Infant mortality is almost universally under-reported in developing countries. In Roman Catholic countries where parents usually have infants baptized several weeks after birth, parish records will fail to record all infant deaths that occur prior to baptism. In other countries, limited recall is often blamed for respondents' failure to mention infant births and deaths in the case of children who die soon after birth. Ingenious statistical techniques have been devised to estimate response failure; these techniques, particularly the Brass-Sullivan method, have been used in Africa to improve infant mortality estimates, i.e., bring the estimates closer into line with what investigators believe to be the 'true' rates. All such techniques have deficiencies, however, which are argued vigorously among professional demographers.[64] Some interesting

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[63] See United Nations, Determinants and Consequences of Population Trends, New York 1973, p. 125, which lists ten countries with their infant mortality rates and percentage declines between the late 1930s and early 1960s.

[64] For a recent review of the latest data see Arjun Adlakha, Joan W. Lingner and James R. Abernathy, "Methods of Measuring Mortality for Developing Countries," mimeo., APHA Meetings, Miami Beach 1976 (International Program of Laboratories for Population Statistics, Department of Bio-Statistics, School of Public Health, University of North Carolina, Chapel Hill), pp. 1-14.

techniques require assumptions about the stability of vital rates for the application of stable-population theory. Where rates are changing rapidly these assumptions do not hold and hence the methods cannot yield reliable estimates of infant mortality rates.

Whatever individual scholarly views may be, one could probably get general agreement to the proposition that small changes in infant mortality from one year to another cannot be measured with any substantial degree of accuracy by small-sample household surveys. An adequate vital statistics registration system is probably essential to get periodic measures of infant mortality. Decennial censuses, which do offer a large enough sample to generate a statistically significant infant mortality statistic, often contain questions too general to elicit sufficient recall to get accurate reporting of infant deaths by their surviving mothers. (Left out of account, by the way, may be infant deaths accompanied by maternal death, in which case neither event might be recorded by periodic census or survey.)[65] The Pan American Health Organization published the results of studies of childhood mortality in several Latin American cities; the mortality rates discovered in that study by Puffer and Serrano were in several countries at variance with official data.[66]

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[65] For a review of 160 published items, see Robert Buchanan, Effects of childbearing on maternal health, Population Reports Series J, 8, November 1975, George Washington University Medical Center, 2001 S Street NW, Washington DC 20009, pp. J125-J140.

[66] Ruth Rice Puffer and Carlos V. Serrano, Patterns of Mortality in Childhood, Pan American Health Organization, Washington DC 1973, pp. 65-71.

1. Policies affecting infant mortality. Several factors within reach of public policy have an impact on infant mortality; these include prenatal care programs, nutritional status of infants, their access to potable water and sanitary environments, and public provision of preventive and curative health services and family planning.[67] Low birth weight greatly increases the probability of infant mortality. Environmental factors may also have substantial impact on general mortality, morbidity, and life expectancy and hence produce desirable outcomes for elements of the population in addition to infants. Paqueo attempted to evaluate the impact of specific health personnel (doctors, nurses and midwives) on infant survival probabilities for Philippine provinces. He found a significant positive correlation between the presence of midwives in provinces and infant survival and, as expected, no significant relationship with the presence of doctors.[68] Findings on health status and health personnel in the United States similarly show that such factors as diet, exercise, etc., are more important determinants of mortality than medical services.[69]

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[67] Determinants of infant mortality were the subject of an unpublished study of PAHO data by Louise Russell and Carol S. Burke, "Determinants of Infant and Child Mortality: An Econometric Analysis of Survey Data for San Juan, Argentina," National Planning Association, Washington DC 1975.

[68] Vincente B. Paqueo, "Family decisions and fertility behavior: The impact of public education and health expenditures," mimeo., Seventh Summer Seminar in Population, East-West Center, Honolulu, 16 June 1976. The author suggests that "government could have reduced in 1975 the mortality rate from 7 to 1.5 percent, which is about the level in developed countries, by hiring 33,161 more midwives that would cost about ₱ 119.4 million" (p. 14).

[69] Victor R. Fuchs, Who Shall Live? Health, Economics and Social Choice, Basic Books, New York 1974.

No government would be wise to judge the impact of health investments only on the health of infants, particularly because factors endogenous to the family which govern infant breastfeeding are probably much more important determinants of infant health than any external government program.[70] Infant feeding practices in developing countries may be a growing cause of the erosion of infant health despite improvements in ecological conditions (provision of potable water and preventive health care, for example) that may be tending to reduce infant mortality.

At the beginning of the twentieth century, the first programs to chlorinate urban water supplies in the United States helped reduce infant morbidity caused by gastroenteritis. Water-borne bacteria, which caused harmless disease levels of poliomyelitis and hepatitis in infancy and helped children maintain immunity in their post-infantile years, were no longer a threat to infant health. However, with early immunity lost because of the environmental improvements, children and adults were subject to much more virulent attacks of the diseases later in life when their bodily defenses were inadequate.[71] These cases of offsetting effects suggest caution in any attempt to assess the health-improvement benefits of specific programs. Development causes women to work more and limit breastfeeding; better water supplies reduce natural

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[70] For studies on this phenomenon in the Philippines see Barry M. Popkin, "The role of the rural Filipino mother in the production of child care time," Discussion Paper No. 76-12, University of the Philippines Inst of Economic Development and Research, School of Economics, July 1976, and the bibliography of works cited.

[71] Based on interview with Dr. R. T. Ravenholt, Director, Office of Population, AID.

immunities; irrigation systems produce water for agriculture, electricity and shistosomiasis. Efficient policies will not be centered on but one of the progress criteria under discussion here. Instead, further investigation of interactions should provide the basis for coordinated food/nutrition/mortality policies.

2. The Infant Mortality/Fertility Link. Families which have many children will tend to bear a greater numerical burden of infant mortality. Late-parity children, i.e., those with siblings already born, are least likely to survive. In Monterrey, Mexico, for example, the infant mortality rate for first-born children was 40.5 per thousand live births whereas that for fifth and higher birth-order children was 90.[72] Similar results were found in Candelaria, Colombia.[73]

In contrast to agreement about the mortality implications of high fertility, there remains controversy about whether lowering infant mortality can cause fertility to fall. The argumentation on both sides of the infant mortality/fertility controversy has become increasingly sophisticated; each advance in understanding of the possible relationships -- broadly divided into biological and behavioral ones -- has required more detailed micro-data. For example, a study of four

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[72]Puffer and Serrano, Patterns of Mortality in Childhood, p. 250.

[73]Joe D. Wray and A. Aguirre, "Protein-calorie Malnutrition in Candelaria, Colombia," Journal of Tropical Paediatrics 15, 1969, p. 92; and Joe D. Wray, "Population Pressure on Families: Family Size and Child Spacing," in Rapid Population Growth, National Academy of Sciences, Johns Hopkins University Press, Baltimore 1971, pp. 403-61.

Guatemalan villages in which mortality has fallen dramatically found some bunching of births for women in their 20s but no evidence of an overall decline in fertility that might have been attributed to mortality decline.[74] The authors suggest more careful study of the post-lactation birth interval for a means of distinguishing a behavioral from a biological response to infant death, but more data are needed to pursue that hypothesis. Within a committee of the National Academy of Sciences, the controversy is being addressed in such manner as to indicate which data could resolve the competition between alternative hypotheses. Guidance on future data needs in this area should come from the committee's deliberations.[75] Recent works on the topic have provided useful new analyses of freshly available data but have not resolved the controversy.[76] Observed correlations between fertility and mortality may be the result, not of interactions of these variables, but of the impact of others (urbanization, industrialization, social mobility, etc.) not

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[74] Charles Teller, et. al., "Effect of Declines in Infant and Child Mortality on Fertility and Birthspacing: Preliminary Results from Retrospective and Prospective Data in Four Guatemalan Villages," CICRED Seminar on Infant Mortality in Relation to the Level of Fertility, Bangkok 1975, pp. 338-43.

[75] Interview with Professor T. Paul Schultz, Economic Growth Center, Yale University. Chairman of the NAS Committee is Professor Henry Moseley, Director, Population Center, School of Medicine, Johns Hopkins University, Baltimore, MD.

[76] T. Paul Schultz, "Interrelationships of fertility and mortality," in Ronald Ridker, ed., Population and Development: The Search for Selective Interventions, Baltimore, Johns Hopkins University Press 1976; CICRED, Seminar on Infant Mortality in Relation to the Level of Fertility (6-12 May 1975), Bangkok, Thailand, 367 p.

included. Thus future analyses are bound to be more exacting in their data requirements than are simple explorations for 'the facts.'[77] One project which might have resolved some issues has been terminated.[78]

C. Population Growth. Reducing population growth comes down essentially to reducing birth rates.[79] Data on birth rates in developing countries have become, unfortunately, a matter of controvery.[80] Some of the controversy may be resolved by the proximate release of data from the World Fertility Survey. However, important issues will remain because WFS surveys are generally based on small samples:

> Let us consider an illustrative example of the effect of sample size on the uncertainty introduced into sample estimates of fertility. Estimates of the crude birth rate based on samples of from 1,000 to 100,000 persons selected from a population with a birth rate of 40 per 1,000 will usually (in about 19 out of 20 samples) fall within the intervals shown in the [right-hand] column of Table 2.

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[77] Kazumasa Kobayashi, "Regional summary of demographic changes and socioeconomic correlates in East Asia -- Hong Kong, Japan, Korea and Taiwan," mimeo., The Center for Southeast Asian Studies, Kyoto University, Kyoto Japan, m.d.; presented at Seventh Summer Seminar, East-West Center, Honolulu, June 1976, p. 25.

[78] Reference is to the Narangwal experiment: See Cuca and Pierce (1976), p. 51, which cites Rural Health Research Center, Narangwal, Punjab, India, The Narangwal Population Study: Integrated Health and Family Planning Services, mimeo., 1975.

[79] This section draws in considerable measure on a recent paper by Nancy Birdsall, "Population-development links: Research for policy," mimeo., Population and Human Resources Division, Development Economics Department, World Bank, August 1976, 81 p.

[80] Data on birth rates are generally produced from censuses and surveys conducted by each country's national government. Controversy arises from the analyses and interpretations of that data prepared by independent investigators.

Table 2

Illustrative Examples of the Sampling Errors Associated with Estimates of the Crude Birth Rate, By Size of Sample

(Sampling errors shown as the two-sigma (2σ) confidence intervals around an assumed crude birth rate [CBR] of 40 per 1,000 population.)

Size of Sample (Persons)[a]	CBR $\pm$ 2σ[b]
1,000	28-52
3,000	33-47
5,000	35-45
10,000	36-44
50,000	38-42
100,000	39-41

[a]Assuming a simple random sample of persons from a very large population in which births are considered to follow a binomial distribution.

[b]Interval expressed in terms of a rate per 1,000 population.

Source: William Seltzer, Demographic Data Collection: A Summary of Experience, New York, Population Council 1973; reproduced in Warren C. Robinson, ed., Population and Development Planning, along with the quotation in the text, New York, Population Council, 1975, p. 239.

> These intervals reflect only the variability due to sampling and thus ignore the possible impact of measurement errors although, as already indicated, measurement error tends to be smallest where sampling error is largest. . . . [E]ven moderate-sized samples can provide only very approximate estimates of the level of the crude birth (or death) rate using data obtained for a 12-month period.[81]

Most of the current controversy about birth rates rages within the two-standard-deviation range that small samples produce around the sample mean. And of course even small samples (three thousand urban and three thousand rural households were included in the Pakistan Fertility survey) can still have large measurement-error problems. One may therefore wonder how many questions will in fact be resolved by WFS data.

In an overview of the world population growth situation, Brackett and Ravenholt maintain that the world birth rate declined from 34.4 in 1965 to 30.6 in 1975.[82] Most of that decline they attribute to the developed countries, the Peoples Republic of China and India, although there has been some decline in a number of LDCs. For most of the developing countries which receive external assistance for population programs, there are no data immediately at hand to permit analysis of recent fertility change, i.e., for 1974 or later. For only 7 of 52

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[81] William Seltzer, Demographic Data Collection: A Summary of Experience, New York, The Population Council, 1973; reproduced in Warren C. Robinson, ed., Population and Development Planning, New York, The Population Council, 1975, pp. 238-239.

[82] James W. Brackett and R. T. Ravenholt, "World Fertility, 1976: An Analysis of Data Sources and Trends," Population Reports Series J 12 November 1976, p. J-212.

countries receiving US bilateral assistance can population growth be measured for 1974 or 1975.[83] All the more difficult therefore is the measurement of impact of recent population program efforts on further recent declines in birth rates. The lagged response of fertility change to the introduction of family planning programs and other features of socioeconomic change further complicate and delay the effort to assess impact.

1. Demographic Transition. Few countries have crude birth rates in the intermediate range between 25 and 35 per thousand population: Only 29 of 200 countries were in that ten-point range in the Brackett-Ravenholt compilaton, whereas 44 were in the next-lower ten-point grouping, and 54 in the next higher.[84] The reason for this appears to be that once a movement from high to low fertility rates begins, it occurs very rapidly.[85] At any moment few countries will appear to be 'in transition.' The very quickness of the transition makes it all the more difficult to

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83 US Bureau of Census, International Statistical Programs Center, "The Feasibility of Measuring Progress in Reducing Population Growth for 52 Selected Developing Countries," mimeo, Washington DC 1976, p. 14; based on US Bureau of Census, World Population: 1975, Washington DC 1976.

84 James W. Brackett, R. T. Ravenholt, "World Fertility, 1976: An Analysis of Data Sources and Trends," p. J-207.

85 Frank William Oeschli and Dudley Kirk, "Modernization and demographic transition in Latin America and the Caribbean," Economic Development and Cultural Change, 23, 3, April 1975, pp. 391-420. See also Dudley Kirk, "A New Demographic Transition?," in Rapid Population Growth, National Academy of Sciences and the Johns Hopkins University Press, Baltimore, 1971.

predict and to study. The Oescli-Kirk analysis based on Latin American data fits reasonably well the finding of transition thresholds suggested in earlier work at the United Nations and in empirical studies in the Philippines by Encarnacion.[86]

Can a government initiate a demographic transition or must it be generated internally within a society? Studies of the impact of family planning programs in Korea and Taiwan show that the programs came into existence after fertility had already begun to decline.[87] The programs do appear to have accelerated the observed decline in fertility. Professor Han's analysis leads him to conclude that investments in the Korean program yielded a highly favorable benefit-to-cost ratio.[88] In other countries, however, including very large ones such as Pakistan and Bangladesh, family planning program activity has not been accompanied by

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[86]Jose Encarnacion, "Fertility and labor force participation: Philippines 1968," Population and Employment Working Paper No. 2, Geneva, International Labor Office, World Employment Program, 1974, and Agustin Kintanar, ed., Studies in Philippine Economic-Demographic Relationships, Manila, University of the Philippines, 1974. United Nations, Determinants and Consequences of Population Trends, 1973, pp. 58-60, reviews the earlier literature.

[87]Studies published in 1974 or before are reviewed in McGreevey and Birdsall, The policy relevance of recent social research on fertility, ICP Staff Monograph No. 2, Smithsonian Institution, Washington DC 1974, pp. 43-59; more recent papers include Albert I. Hermalin, "Spatial analysis of family planning program effects in Taiwan;" Kee Chun Han, "Cost-benefit analysis of family planning programs in Korea;" and Naohiro Ogawa and Robert D. Retherford, "Decomposition of the change in the total fertility rate in the Republic of Korea, 1966-70," Seventh Summer Seminar in Population, East-West Population Institute, Honolulu, June 1976.

[88]Kee Chun Han, "Cost-benefit analysis of family planning programs in Korea," pp. 39-41.

a downturn in fertility.[89] Some would argue that lack of commitment and administrative capacity are responsible for the failure of family planning to work more effectively in those countries. Ravenholt and Gillespie, discussing the Pakistan Contraceptive Inundation Scheme, write as follows:

> The sluggishness of the rise in oral contraceptive sales is believed due to the rather long-lived mind set of Pakistan family planning personnel against oral contraceptive use. This negative attitude is further aggravated by frequent alarmist articles emanating from US and British sources which are reprinted in the Pakistan press.[90]

Administrative hangups and an adverse press are real problems in many countries. If, however, a significant degree of motivation in the populace at large is essential to the success of a family planning program (as demonstrated, for example, by an extant downward trend in fertility), it would be unwise to condition external assistance on observable fertility-reduction achievements. The sudden, precipitate and unpredictable nature of fertility decline once it begins all argue against withdrawal of support because such support may be critical at the moment that the demographic transition begins in a country. As Oeschli and Kirk conclude,[91]

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89 World Fertility Survey, Pakistan Fertility Survey, First Report, Population Planning Council of Pakistan, Islamabad, October 1976, p. 78, Table 3.8, shows a higher fertility rate in Pakistan for 1974-75 than had prevailed in the 1960s. However, the more complete collection of data in the recent interview may be giving a spurious result. Nonetheless, fertility decline does not appear to have begun.

90 Reimert T. Ravenholt and Duff Gillespie, "Maximizing Availability of Contraceptives Through Household Distribution," Village and Household Availability of Contraceptives: Southeast Asia, 1976, Battelle Memorial Institute, Seattle Washington 1976, p. 9.

91 Oeschli and Kirk, op. cit., pp. 416-417.

> the effect of a concerted family-planning campaign logically ought to be a function of the level of development of the country in which it is begun. This proposition remains to be tested with adequate evidence, but one can guess that the introduction of such a program tends to have the greatest impact at medium stages of development; at lower stages the motivation for smaller families, which is a consequence of development, is not great, and at later stages the natality decline will take place regardless of the program. In the middle ranges an active family planning program diffuses birth control more rapidly than otherwise would be the case.

That is not to say that no attention need be given to assuring program efficiency and administrative effectiveness in the poorest countries (these -- South Asia and Subsaharan Africa -- are after all the bulk of the population problem in the world); rather, the expectations of program success must perforce be more modest because other conditions are far from ideal for virtually any program -- including population planning -- designed to improve the quality of life.

There is a substantial lag between the application of family planning methods and an observed effect on the birth rate.[92] About two years pass between a woman's decision and a measured change of fertility -- at a minimum. This long lag could lead to the anomalous situation of a program's funding being cut for failure at the very moment it is beginning to succeed!

Approaches to data gathering must seek early-warning mechanisms to map out the temporal relationships between family decisions and their

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[92] Cf. Roberto Cuca and Catherine Pierce, "Experimentation in family planning delivery systems," mimeo., Development Economics Department, World Bank, August 1976, pp. v-vi.

revelation in micro-survey and aggregate data. A recent AID publication on family planning services shows what pills, condoms, etc., were provided through 1975.[93] The impact of these services would probably not show up in fertility rates until 1976 or later. Some consideration might be given to linking the timing of past family planning inputs to lagged responses of fertility change as a means of predicting the future impact of current actions. This technique faces the problem of sudden thresholds and transitions which make prediction difficult. Moreover, important factors other than family planning services (e.g., marital customs) can have a significant impact on fertility.[94]

2. Population Impact Analysis. A recent flurry of interest in population impact analysis -- the study of how unintended consequences of development programs may affect population growth -- has led to suggestions that as projects are assessed for their environmental impact so too should they be assessed for their population impact.[95] Policies

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[93] US Agency for International Development, Family Planning Service Statistics Annual Report 1975, Washington DC.

[94] The long-term decline in nuptiality was shown by Fernando to be a significant cause of fertility decline in Sri Lanka: Percent married of age cohort 15-19 was 51.9 in 1901 and 10.5 in 1971; for the age cohort 20-24 the decline over the same years was from 79.0 to 46.9 percent. Dallas F. S. Fernando, "Changing nuptiality patterns in Sri Lanka, 1901-1971," Population Studies 29, 2, July 1975, pp. 179-190.

[95] William Paul McGreevey and Nancy Birdsall, "The policy relevance of recent social research on fertility," ICP Occasional Monograph 2, The Smithsonian Institution, Washington DC 1974, pp. 74-75.

and programs affecting nutrition and mortality; women's status, schooling and employment; the intra-household sharing of decisions and authority may indirectly affect age at marriage, desired family size and eventual fertility. As Berelson has remarked,

> there is agreement on a few broad propositions: the effect of general development/modernization/industrialization in lowering fertility, and the similar impact of education and age at marriage/proportion married, and perhaps infant/child mortality. But the picture is unclear with regard to income/income distribution, urban residence, female employment and family structure, and also with regard to the validity of nontrivial amounts of 'unwanted' fertility.[96]

Knowledge about relationships is too vague to permit accurate assessment of, e.g., how much schooling can cause how much fertility change. Population impact analysis successfully pursued will require reasonable models of causal links and better information about how specific programs affect fertility while realizing primary objectives of rural development, maternal and child health, provision of satisfactorily remunerative work and equitable distribution of income.

Should population impact analysis follow a course similar to that of environmental impact statements in the United States, this area of endeavor will be impressive indeed:

> In a typical year, 30,000 Federal agency actions are scrutinized for possible environmental impact. Out of the process have come, since 1970, 7,500 statements. . . .
>
> The process has had profound, if often invisible, effects on the face of the nation. The Corps of Engineers, the Department of Transportation, Interior and some 30 other

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[96] Bernard Berelson, "Social Science Research on Population: A Review," Population and Development Review 2, 2, June 1976, p. 230.

> agencies and bureaus, have dropped or modified hundreds of projects as a result of environmental-impact scrutiny. Real estate development in the Florida Keys, nuclear power and radioactive waste disposal plans, pesticide applications, offshore oil leases, and even the location of the Kennedy Memorial Library in Cambridge, Mass., all have been altered because of environmental considerations. The Alaska pipeline was held up for several years for thorough environmental assessment -- a delay the builders now acknowledge averted dire construction mistakes.[97]

Despite the current shortcomings of theory and data and the scarcity of efforts to apply population impact analysis to development policy planning, this area of action research could have significant benefit to future efforts to assess the progress and commitment of donors and governments to the objectives of alleviating poverty.[98]

D. Income Distribution. The latest surge of interest in income distribution issues was fed by a controversy over data, as well as a realization of the inadequacy of the growth process to serve the objective of alleviating the indignities of extreme poverty. The Brazilian 'miracle' of rapid economic growth rates since 1964 was assisted in substantial measure by World Bank and other international financing. Bank reports, drawing on data prepared by the Brazilian government, reflected an assumption that the distribution of the benefits of growth was such that the poorest were, at the least, no worse off at the end of the 1960s than they had been before the miracle boom began. Independent data analysis showed that considerable numbers of Brazilians were not

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[97] Gladwin Hill, "Environmental Impact Statements, Practically a Revolution," The New York Times, 5 December 1976, p. 5E.

[98] William Paul McGreevey and David N. Holmes,"Population Impact of the Development Perspective, 1975-80," mimeo., Washington DC 1975, on Pakistan.

benefiting from growth.[99] That analysis, along with an increasing flow of papers, theoretical as well as referring to other countries, contributed to wider awareness of the income distribution issue. It was against such a background that Robert McNamara in 1972 made income distribution a central theme of his annual address at the Bank/Fund joint meeting. Intellectual engagement, thus reinforced by practical concern, led to continued concentration in the development community on issues in the size distribution of income and policy approaches to achieving greater equity. A first-stage culmination came with publication of Redistribution with Growth, a semi-official World Bank policy statement.[100] As its title suggests, that book offers a strategy for assuring that gains from further economic development reach the poor. Much of the work of the Bank's Development Research Center has been directed to charting the condition of the poor in developing countries, to devising specific policies targeted to alleviation of poverty, and to planning a rationale for shaping Bank lending to achieve objectives of equity as well as of aggregate growth. As a consequence of this interest, the World Bank's Development Policy Staff is probably doing more to understand the size distribution of income in

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[99] Albert Fishlow, "Brazilian size distribution of income," The American Economic Review 62, May 1972, pp. 391-402. See among later works on this topic, Carlos G. Langoni, Distribuçãa da renda e desenvolvimento econômico do Brasil, Rio de Janeiro, Editora Expressão e Cultura 1973, and Gary S. Fields, "Assessing progress toward greater equality of income distribution," mimeo., Yale University, November 1976, pp. 47-52.

[100] Hollis Chenery, Montek Ahluwalia, et. al., Redistribution with Growth, 1974. Chenery is a World Bank vice president in charge of the Development Policy Staff; many of the other authors are members of that staff.

developing countries, its causes and consequences, than all other groups and individuals combined. It is perhaps worthwhile to remember that it was an issue of measurement of progress criteria that gave such a remarkable impetus to Bank research and action.[101]

1. Measurement and objective. John Rawls, A Theory of Justice (1971, pp. 258-332), reviews the arguments for equality, leading toward what some have called a maximin principle (maximize the minimum incomes among individuals) but emphasizing along the way the principle of equality of opportunity. The latter is a more limited objective than equality of outcome. Equal opportunity has virtually been built into the rhetoric of postindustrial societies, perhaps because of a belief that much of the inequality of observed incomes is justified by differences in natural endowments, effort, age, household structure, and non-economic compensation that is distributed differently from observed income. Elites in the United States do not favor equality of result although they overwhelmingly do favor equality of opportunity.[102] If social policy is not

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[101] The World Bank is engaged in joint projects with the Economic Commission for Latin America (ECLA) and the Economic and Social Commission for Asia and the Pacific (ESCAP) on measurement and analysis of income distribution in Uruguay, Colombia, Panama, Chile, Venezuela, and Brazil (with ECLA), and Pakistan, Iran, India, Nepal, Thailand, Hong Kong, Sri Lanka, Malaysia and Taiwan (ESCAP).

[102] Nine elite groups were asked about their choice between equality of opportunity and equality of results: "All the leadership groups overwhelmingly chose equality of opportunity. Feminist leaders and young people rejected equality of results by margins of 12 to 1; businessmen, farm leaders and the media by 90 to 1, the other groups by margins between those extremes" (Barry Sussman, "Elites in America: A Washington Post - Harvard Survey," The Washington Post, 26 Sep 76, p. A8).

in fact directed at equality of income, then measurement of gini coefficients may be quite irrelevant as data sources for policy purposes. Yet these coefficients have been the bread and butter of statistical analysis on income distribution over the past few years. One way such measures may mislead was demonstrated in a recent paper by Morton Paglin.[103] In the United States, age and household size account for a third or more of observed inequality of annual income. In the period 1947-72, aggregate income distribution appears not to have improved; however, if age and household size are taken into account, one may conclude that inequality lessened during the period.

Inequality of opportunity is a problem on which most observers would agree there is plenty of room for improvement.[104] Research might then temporize on measurement of income disparities to concentrate on measurement of opportunity disparities. . .and their elimination. This approach would lead to a search for different data.

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[103] Morton Paglin, "The Measurement and Trend of Inequality: A Basic Revision," The American Economic Review 65, 4, September 1975, pp. 598-609.

[104] The opportunity vs. result argument in the United States has centered on the role of schooling. Jencks and Associates, Inequality, A Reassessment of the Effect of Family and Schooling in America (New York, Basic Books 1972) present arguments that inequality of income distribution cannot be eliminated by equality of opportunity for schooling. Various authors published in The Public Interest over the past several years, particularly Daniel Bell, have outlined the intellectual basis for a "new conservatism' and a justification for continuing inequality. This debate may help to clarify attainable and desirable policy objectives in developing countries as well as in the United States since the motives of 'justice as fairness,' to use Rawls' term, are apparently shared by people on both sides of the debate. See also Daniel Bell, The Coming of Post-Industrial Society, A Venture in Social Forecasting, New York, Basic Books, pp. 408-56, and on the other side of the issue, Samuel Bowles and Herbert Gintis, Schooling in Capitalist America, 1976.

2. The constancy of poverty. Cross section income distribution data by definition show the bottom fractile of persons or households with the lowest share of income. A second cross section snapshot of income distribution taken some years later may or may not reveal a change in that fractile's income share. Virtually all long-term analyses of patterns of the size distribution of income examine just such data; an example is Gabriel Kolko's Wealth and Power in America: An Analysis of Social Class and Income Distribution (Fraeger, New York 1962), which presents such data over the years 1910-59. Such data do not, however, specify whether the same people (or their offspring) always remain at the bottom (top) of the scale. Without knowing whether there is a change in many people's position on the income ladder, one cannot be sure whether observed income difference is largely tautological (the lowest at the bottom, highest at the top, by definition, despite mobility), or whether there is a condition of poverty in which the poorest always "seem to be in infernal destitution."[105]

Until recently, the observed income inequalities were compatible with two strikingly different dynamic interpretations: Shirtsleeves to shirtsleeves in three generations, and the poor ye shall always have with you. But longitudinal data on earnings of US social security-covered workers goes some distance toward demonstrating how much change there is over time in the composition of the poor (and other income groups) in the

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[105] B. S. Minhas, "Rural poverty, land redistribution and development strategy," Indian Economic Review 5, 1, April 1970; cited in Robert Cassen, "Welfare and population. . . ," Population and Development Review 1, 1, September 1975, p. 37.

United States.[106] It goes without saying that there seem to be no longitudinal data of similar nature for any developing countries.

Data from the Social Security Administration for the two years 1957 and 1971, produced a sample of 74,227 male workers age 30-34 who earned at least $1,000 in 1957 and were still working in 1971.[107] This data source permits analysis of what percentage of all workers in a given cohort changed their relative position from the time they were 30 to 34 years of age to the time they were 44 to 48 years of age. These workers were placed in ventiles (20 equal groupings) at the two dates. As a rule of thumb, Schiller calls a worker mobile if between the two dates he moved at least two ventiles up or down the earnings distribution. "By this criterion, 71 percent of all the workers were in fact mobile, suggesting a tremendous amount of fluidity in the socioeconomic structure" (Schiller 1976, p. 115). In addition to a high percentage of workers experiencing mobility (as so defined), the extent of many individual's earnings mobility was substantial:

> Indeed, the <u>average</u> move is 4.22 ventiles (21 percentiles) up or down the earnings distribution, or over one fifth of the way from one end of the distribution to the other. Hence mobility of relative status not only is a common experience, but also involves very large movements (Schiller 1976, p. 115).

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[106] There are serious methodological problems associated with longitudinal analysis. The Social Science Research Council (New York) has convened three meetings in 1976 to discuss these issues. Economists James Heckman, Robert Willis and Jacob Mincer, all of whom are working on such data, attended some of the meetings. For details, see <u>Items</u> published by SSRC, <u>30</u>, 3, September 1976, p. 49.

[107] Bradley R. Schiller, "Equality, opportunity and the 'good job,'" <u>The Public Interest</u> <u>43</u>, Spring 1976, pp. 111-20.

Thus these data seem to support a shirtsleeves-to-shirtsleeves version of observed, cross-sectional income inequality. Using the same data, however, another analyst, concentrating on year-to-year fluctuations in earnings rank over roughly the same period, emphasized income disparities between blacks and whites and the greater tendency of the former to get stuck at the bottom of the income distribution.[108] Certainly such data sources will not resolve all arguments about trends in income distribution over time; at the moment, however, there is not even the possibility of formulating data-related, rejectable hypotheses on this aspect of inequality and poverty in the developing countries.

3. Policies for Opportunity. Once the income distribution is viewed from an opportunity perspective, one can concentrate on instances of inequality of opportunity and consider measures to eliminate them. Rawls expresses the view in A Theory of Justice that the family as an institution is a major source of unjust or unfair inequality; the manifestation of unfairness among the very poor is in the extreme protein-calorie malnutrition of infants, particularly in very large families.[109]

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[108] John J. McCall, Income Mobility, Racial Discrimination and Economic Growth, Lexington Books, New York, A Rand Corporation Study, 1973, 212 p. "Sustained economic growth is not sufficient for the elimination of low earnings. Alternative programs are needed -- either an income maintenance program or one that invests in human capital (such as health and training programs)," p. 51.

[109] Elizabeth B. Connell, "Health implications of family planning: Documentation and data," Foreign Assistance Authorization, GPO, Washington DC 1975, pp. 664-708, contains a wealth of data on family size, welfare and nutrition.

The earliest, and still virtually unmatched, studies of infant malnutrition in a developing country were done by Joe D. Wray and associates; they demonstrate the serious losses and unequal start that blocks poor children who grow up in very large families from equal chances with the more advantaged.[110] More recently, a few far-sighted economists, approaching nutrition from a human-capital perspective, have pointed out the extent of the losses from not eliminating malnutrition. "The most practical remedy for infant malnutrition is a redistribution of income toward the infant and his family; the cost of not undertaking this redistribution now is massive disinvestment in early human capital formation and, perhaps, greatly increased distributional problems with a low-income, low-productivity segment of the population in the future."[111] Redistributing income in aggregate would probably be a much more costly program, and less likely to achieve an equality goal at some future specified date, than would programs targets specifically to malnourished infants.[112]

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[110] Joe D. Wray, "Population pressure on families: Family size and child spacing," Rapid Population Growth, National Academy of Sciences, Johns Hopkins University Press, 1971, pp. 403-61; and Joe D. Wray and A. Aguirre, "Protein-calorie malnutrition in Candelaria, Colombia," Journal of Tropical Paediatrics 15, 1969, p. 92.

[111] Marcelo Selowsky and Lance Taylor, "The economics of malnourished children: An example of disinvestment in human capital," Economic Development and Cultural Change 22, 1, October 1973, p. 30; see also Selowsky, "A note on preschool-age investment in human capital in developing countries," ED&CC 24, 4, July 1976, pp. 707-20.

[112] Reutlinger and Selowsky, "Malnutrition and poverty," op. cit., pp. 5-7, 49-52.

One approach to the solution of malnourishment among infants is to tax their parents to provide sufficient infant food. This principle is already embodied in maternal and child care programs, efforts to reverse the growing tendency of mothers to give up breastfeeding and provision of special weaning foods. The existence of such programs demonstrates awareness that general welfare is improved by programs targeted to family members who are relatively weak competitors for family resources. Because the family tends to redistribute intra familia, one of the few means of reaching the infant is with special foods.

S. Chakravarty, a member of the Planning Commission of the Government of India observes that,

> As in the case of health and education, failure to ensure diffusion of family planning benefits can lead at least in the medium run to increased inequalities in the distribution of incomes.[113]

Later in his paper for the United Nations Statistical Commission he remarks on the need for data on household size and income distribution. "These data will also make explicit whether poorer families are characterized by higher dependency ratios, an assumption often made and which, if true, would have very significant implications in devising egalitarian economic policies."[114] The provision of family planning services could in his view have important beneficial effects on the distribution of

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[113] United Nations Statistical Commission, "A draft framework for the integration of social and demographic statistics for developing countries," 19th Sess., New Delhi, November 1976 (E/CN.3/490), p. 9.

[114] Ibid., pp. 30-31. For a recent international cross-sectional study see A. K. Bhattacharyya, "Income inequality and fertility: A comparative view," Population Studies 29, 1, March 1975, pp. 5-20.

income if those services are extended to the poor. If, however, high fertility and large family size remain endemic among identifiable poor strata, then a permanent poverty group locked in a vicious circle of malnutrition, infant deaths, no schooling and culturally-determined repetition of the cycle in each new generation may be the legacy of the failure to extend low-fertility norms throughout a society.

Differential access to education is another source of inequality -- one so costly that correcting it is beyond the resources of most governments in developing countries. The same may be said for other publicly-supplied services: Access by the poor and the rural is more limited than for the well-to-do and urban. Studies of public utilities services (water, electricity, sewerage) in Colombia and Malaysia bear out this generalization.[115] Given so much inequality of opportunity, policy decisions must be made as to which sources of inequality should receive priority attention.

4. Does Money Buy Happiness? This question informed an investigation by Richard Easterlin of whether persons and societies experienced greater real welfare as a result of increases in income.[116] He finds that

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[115]Marcelo Selowsky, "The distribution of public services by income groups, a case study of Colombia," mimeo., World Bank, 17 August 1976; and Jacob Meerman, "The distribution of public services in Malaysia;" education and health services are broadly available in Malaysia.

[116]The fuller statement of his results appears in "Does economic growth improve the human lot? Some empirical evidence," Paul David and Melvin Reder, ed., Nations and Households in Economic Growth, Academic Press, New York 1974, pp. 89-125. A popular summary is R. A. Easterlin, "Does money buy happiness?" The Public Interest 30, 1973, pp. 3-10. Some corroborating evidence to the Easterlin hypothesis of relative incomes appears in Otis Dudley Duncan, "Does money buy satisfaction?" Social Indicators Research 2, 3, December 1975, pp. 267-74.

those of higher status and income are, across nations, happier (or more exactly, fewer of them answer that they are not very happy) than those of low status and income. Easterlin poses the question,

> Why do national comparisons among countries and over time show an association between income and happiness which is so much weaker than, if not inconsistent with, that shown by within-country comparisons? (Easterlin 1974, p. 111)

The answer, of course, turns on relative income. The better-offness people feel is partly a phenomenon of absolute well-being (as measured by adequate food, housing, leisure time, satisfactory work, etc.) and partly related to how well off one is with respect to others. Measurement of income distribution must take this phenomenon into account. Duncan found in a study of Michigan residents over time that "increasing the standard of living in 'real' terms does not lead to a subjective increase in the standard of living for the population as a whole" (Duncan 1975, p. 270). This observation, one should immediately note, is based on an ultra-high-income group within the total global population; however, relative-income effects may be important at low income levels as well. If real aggregate satisfaction is to be increased, a development model will have to be devised in which satisfaction is derived from absolute improvements in welfare rather than from getting ahead of one's reference group.

E. Unemployment and Underemployment. Just as human capital theory produced a 'new home economics' it has apparently produced a 'new labor economics.'[117] The two principal changes wrought by the new labor economics in the understanding of development issues might be described as follows: (1) Disguised underemployment in LDC agriculture, if it exists at all, had been vastly overstated prior to the publication of T. W. Schultz's Transforming Traditional Agriculture (1964); (2) unemployment can be effectively analyzed as a form of leisure and hence a use of time that the more advantaged rather than the less advantaged residents of poor countries can be found to be 'consuming.' There are many other findings of the new labor economics that, if not outrageous, are at the least unexpected if one approaches employment issues from the perspective of conventional wisdom founded on observations of cyclical problems of high capitalistic development.[118]

In a recent comprehensive review of labor markets in developing countries, Berry and Sabot reported a number of findings, some of which

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[117] A recent review of labor economics by Glen G. Cain, "The challenge of segmented labor market theories to orthodox theory: A survey," Journal of Economic Literature 14, 4, December 1976, pp. 1215-57, examines poverty, inequality of labor incomes and other issues in the US economy which are relevant in some respects to LDC problems.

[118] A very different perspective on unemployment was introduced recently by A. K. Sen, Employment, Technology and Development, Clarendon Press, Oxford, 1975, by recognizing income, production and 'recognition' aspects of unemployment. He offered estimates for India in Dimensions of Unemployment in India, Calcutta 1973, which shows high rates of underemployment. These data are reviewed along with many other studies by Robert Cassen, "Welfare and population: Notes on rural India since 1960," Population and Development Review 1, 1, September 1975, pp. 33-70.

may be stated here briefly, without the details of their sources or analysis:[119]

a) In Asian and Latin American countries where calculations have been effected, the [rural-urban] income differentials are more or less in line with those observed in developed countries (p. 26);

b) Open unemployment is relatively unimportant in the poorest societies, where self-employment predominates; in developing countries as a group, the rate of unemployment has been increasing together with national income (p. 33);

c) Higher unemployment rates among educated than uneducated workers are found throughout the developing world. School-leavers are faced with the choice of 'queuing' for a job in the preferred occupation or of accepting a less-preferred (lower wage) job. For some workers expected income will be higher in unemployment than in relatively low wage employment (p. 52);

d) Resource costs of maintaining a pool of openly unemployed are not likely to be very high: The output that would result from their employment is unlikely to add more than one or two percent to national income (p. 57);

e) Being without work is a luxury that only a small proportion of labor

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[119] A. Berry and R. H. Sabot, "Labor market performance in developing countries: A survey," mimeo., Employment and Rural Development Division, Development Economics Department, World Bank, June 1976. Subsequent references are to page numbers in this draft which is currently being revised.

force members can afford for longer than several months at a time (p. 62);

f) Loss associated with imperfect labor allocation could range between 5 and 12 percent of national income; such output gains correspond to a few years normal growth of per capita income (p. 117).

A general conclusion is that labor markets work reasonably well in developing countries.[120] Policies designed to make them work better require data at once more detailed than and different from those usually encountered in wage and employment surveys.

1. Female Labor Force Participation. The participation of women in the labor force is a more variable statistic than that of male participation. For example, the Philippines female labor force participation rate, measured twice each year in labor force sample surveys, has varied between 30 and 50 percent over the last two decades.[121] In international comparisons, the Philippines has the highest rate of female labor force

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[120] Employment and income distribution issues are explored in the ARTEP/ARMS seminar papers, Jose Encarnacion, ed., Income Distribution, Employment and Economic Development in Southeast and South Asia, The Japan Economic Research Center, Tokyo, and Council for Asian Manpower Studies, Manila, July 1975.

For another recent review of this topic see Gary Fields, "Rural-urban migration, urban unemployment and underemployment and job-search activity in LDCS," Journal of Development Economics, 1975, pp. 165-87.

[121] Mahar Mangahas and Teresa Jayme-Ho, "Income and labor force participation rates of women in the Philippines," Discussion Paper No. 76-3, University of the Philippines School of Economics, Institute of Economic Development and Research, January 1976, p. 69.

participation in one compilation,[122] with women constituting 43.9 percent of the nonagricultural labor force.

Female labor force participation, as noted above in discussions of nutrition and infant mortality, interacts with those variables to produce a number of implications for the achievement of development objectives. Concentration only on working women, as is typical of employment surveys, misses the possibility for study of alternative uses of household time and their implications for production of aggregate well-being.[123] The entry of a woman into the labor force may raise family income now but depress it later -- via lower nutritional status of infants and poorer feeding habits of older children. Only a comprehensive study of time use could capture the implications of these alternative effects.[124]

High unemployment rates among men have been cited as reasons why public-sector programs cannot be directed to providing work opportunities for women in developing countries. If, however, observed high

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[122] A. Berry and R. H. Sabot, "Labor market performance in developing countries" (1976), p. 10. At the bottom of the Berry-Sabot list is Algeria where women account for but 7.7 percent of the nonagricultural labor force.

[123] See James L. McCabe and Mark R. Rosenzweig, "Female labor-force participation, occupational choice, and fertility in developing countries," Journal of Development Economics 3, 1976, pp. 141-160.

[124] Popkin found poorer nutritional status among children of working mothers, despite the somewhat higher family income that the mother's work produced. In part this effect grew out of parental failure to enforce good diet: Children of working mothers did not eat their vegetables and hence had somewhat greater incidence of Vitamin A deficiencies leading to limited acuity of vision.

unemployment is based on male queuing for specific jobs rather than an absolute dearth of employment opportunities, that argument against female employment evaporates.[125]

The utility of employment surveys would be enhanced if they were conceived to include the use of time in market work, work at home and leisure. As Mangahas and Jayme-Ho remark in their review of female labor force participation in the Philippines, "The data gathering institutions, primarily governmental, appear to have been guided by an implicit analytical framework which has failed, among other things, to take proper account of women's economic contributions within the home."[126]

2. The Labor Utilization Approach. It is the aggregate temporal resources of individuals and households, along with the accumulated human and physical capital they have,which are put to work to earn income. For the poor, time is their most important asset. To

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[125]Nothing is said here about the fertility effects of female employment because of a growing uncertainty among analysts about the causal links that run between the two variables. "Women's employment per se only depresses fertility under very special circumstances -- for women in the urban sector, modern labor force. . . . Policies to promote women's employment are interesting theoretically as a depressant to fertility but not widely applicable. Job creation is not nearly so manipulatable a variable as policymakers wishing to reduce fertility had hoped" (Nancy Birdsall, "Women and population studies," Signs, Journal of Women in Culture and Society 1, 3, Spring 1976, p. 707).

[126]Mangahas and Jayme-Ho, op. cit., p. 148.

analyze employment and unemployment problems among the poor, the question, "Are you looking for work but unable to find it?" must give way to, "How did you spend your time?" That question might then be followed with the more tentative, "How would you like to have spent your time?" A valuable source of information on households is contained in answers from school children in a recent ECIEL study which inquires as to the use of out-of-school time, distinguishing study time, leisure and work.[127] Time use may be an important practical guide to investments which individuals are making in their own human capital. Past surveys have picked out only a piece of 'market' time and ignored the rest: Developments in human capital theory and the potential applications to policy are now such that a change in data gathering is a propos.[128]

An alternative approach for Southeast Asian countries was proposed by Dr. Mitsuo Ono after a period of close collaboration with NCSO in Manila; he called his alternative the 'labor utilization' or 'Manila' approach.[129] The alternative approach was necessary because of the

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127 ECIEL Education and Development Project, CEDE, Universidad de los Andes, Bogota. Details on the survey questionnaire from Rodrigo Parra and Jose Alzate.

128 For a recent review see Mark Blaug, "The empirical status of human capital theory: A slightly jaundiced survey," The Journal of Economic Literature, 14, 3, September 1976, pp. 827-55.

129 Mitsuo Ono, "A feasible method for collecting labor utilization, earnings and other social and economic data in Southeast Asian countries," mimeo. unpub. report to AID/PPC, July 1973; "Followup report on developing a feasible method for collecting labor utilization, earnings and other social and economic data in Southeast Asian countries," mimeo. unpub. report to AID/PPC, November 1975, and "A proposal for a quarterly multi-purpose household sample survey in Pakistan," mimeo. unpub. report to AID/PPC, July 1975.

prevalence of data-gathering techniques inapplicable to Southeast Asian country settings:

> . . . All agencies visited used the labor force approach in compiling employment, underemployment and unemployment statistics. Because of the overlapping and irregular work patterns typically found in these countries, it became apparent that the use of the labor force approach designed for application primarily in the more developed countries produced data which did not reflect realistically the complex labor utilization situation in LDCs (Ono 1973, p. 3).

The Manila approach focuses on measuring the weighted volume of labor input (e.g., hours worked multiplied by prospective earnings rates) in the production process; it uses a flow accounting concept as opposed to the stock accounting concept used under the labor force approach (Ono 1973, pp. 11-12). Labor agents are then classified by the manner in which their stream of labor energy is utilized as inputs into different work or nonwork activities; consequently, there must be a more detailed time disposition questionnaire schedule. Ono discusses this aspect of the questionnaire in some detail but cautions that its specific application and experience with it are needed before its utility can be properly judged. Nonetheless, he argues,

> As opposed to the labor force approach, the Manila approach has a distinct theoretical orientation in the compilation of labor utilization data, that is, to measure the weighted volume of labor energy utilized in different activities in terms of time, end-use of activity and prospective and actual remunerations received. . . .[It] sharpens the compilation of household activity information used in making policies on employment creation and labor utilization, income distribution, and growth of GNP. Another advantage is that it provides a better orientation on compiling data on human capital formation (Ono 1973, p. 23).

In his follow-up report (1975), Ono writes that in the Philippines, "The statistical office is making a strong effort toward developing a national system of quarterly multi-purpose household sample surveys. In this endeavor, they will be formulating and using questions on labor utilization supplementing their regular questions on labor force status" (Ono, Nov 1975, p. 35). Two years passed between the first field visit (ending in March 1973) and the follow-up (June 1975) with little progress in data gathering. The host government and sources of external technical assistance should perhaps exert greater energy to implement what appear to be extraordinarily useful recommendations. Perhaps the lack of follow-up on one of Dr. Ono's four key recommendations was responsible for much of the delay:

> Statistical personnel contacted by this writer were knowledgeable and experienced in household survey operations and technology. Many of them expressed needs to exchange ideas and to discuss mutual problems on planning and conducting multipurpose household surveys including ways to find new methods to collect more meaningful information for use by analysts and planners (Ono 1973, p. 4).

His follow-up report returns to that problem but with an emphasis on the demand for information among planners and policymakers.

V. What Can Be Done? This section reviews options in information gathering about the poor and what can be done for them through development assistance. There has been no special effort to assign priorities.

A. Assembly of existing secondary data. World Tables 1976 includes many data series pertinent to the five progress criteria discussed here. It may prove worthwhile to schedule a seminar to discuss the social indicator series in World Tables 1976. It could be modeled on the seminar held by the SSRC Center for Coordination of Social Indicator Research after publication of the US OMB Social Indicators 1973. One objective would be to encourage local institutions in the developing countries to supplement the World Bank publication with greater detail as appropriate for each country within a format that would extend the possibilities of international comparative study.

B. Coordination of existing micro-data. The many household, labor force, fertility, morbidity, income and expenditure, farm and multi-purpose surveys which have been conducted in developing countries probably could not be brought together for comparability in the same way as aggregate, country-wide indicators. Many questions raised in this paper could be answered with ready access to existing micro-data. In fact, however, such data are often treated as private rather than public property; are unknown with respect to details of questionnaires, response, and sampling error; and are rarely exploited fully for their analytical potential. An exception is the 1968 National Demographic

Survey carried out in the Philippines: Many analysts have had access to the data and have published important empirical analyses of fertility behavior; there are no indications that anyone has been harmed by the openness with which the data have been treated. Expanded data-bank facilities for micro-data would contribute to aggregate understanding of poverty and development.

C. Longitudinal Micro-data. Many analyses of development depend on cross sections in a slice of time and consequent assumptions about behavior through time. The understanding (or misunderstanding) of behavior over time of fertility, income and its distribution, and occupational experience draws heavily on assumptions of structural regularities between components of cross sections. Yet in fact there may be so much oscillation and variability over time of some of these social characteristics that findings based on cross sections will be entirely misleading. The experience of individuals and families over time would yield a vital new perspective on many of the issues surrounding the progress criteria discussed here.

Poor families make near-heroic responses to relative deprivation -- working children, work by the mother, extra adults in the household, etc. These behavioral patterns can only be investigated empirically through longitudinal studies of real family situations. Many fertility surveys ask retrospective questions that can be used to construct fertility or pregnancy histories which substitute in part for longitudinal data. However, births ten years back can only be related to

occupation, income, residence and other characteristics that pertain now since questionnaires normally ask only about current income and occupation. Full retrospective data would probably be impossible to construct in interview situations.

It could prove worthwhile to institute an informal search through the developing world for existing longitudinal micro-data. Yale University's Human Relations Area File records immense amounts of anthropological data, some of which cover significant time periods and are relevant to the five progress criteria discussed here. Some anthropologists have been collecting information on specific villages for decades and make little use of those data outside brief publications. Such sources could prove enormously informative. Village micro-data would be particularly useful in those areas in which significant external assistance projects have been instituted. Such data, if they cover the before-and-after conditions of the village, would contribute to assessment of project impact.

Some survey data from LDCs may permit longitudinal treatment. The Additional Rural Income Study carried out by the National Center for Applied Economic Research in India has data on a sample of Indian households which includes farm input-output data, time use and demographic data over several years.[130] Panel data are available in a

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[130] Collection of these data was inspired by Dr. Ronald Ridker who at the time of initiation of the project was working with US AID in New Delhi.

series of studies of rural communities and urban barrios in Colombian cities between 1963 and 1975. Staff of the University of Wisconsin Land Tenure Center have published some results, although the possibilities are far from having been exploited.[131]

There are probably some national surveys taken over time with repeated households in some of the developing countries. Whether such materials could be examined depends much on the confidentiality provisions which surround data gathering.

D. New Data from Multipurpose Surveys. For some purposes, the specific surveys of labor force, fertility, morbidity, nutritional status, income and expenditures could successfully be replaced with a centralized system of multipurpose surveys. Dr. Ono wrote in 1973:

> Observations of multipurpose household sample survey operations conducted in Sri Lanka, Malaysia, and in the Philippines clearly indicated that the extension of such surveys not only reduces the costs of duplicative and expensive ad-hoc household sample surveys but also produces more accurate and relevant information for use by policymakers. This also calls for more research on formulating theories of household production behavior in LDCs so that various types of household data can be integrated into an analytical framework (Ono 1973, p. 4).

When he returned to Southeast Asia two years later, Dr. Ono was able to specify his recommendations somewhat better since he became aware not only of the prospects for better data systems but also of the need to

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[131] A. Eugene Havens and William Flinn, Internal Colonialism and Structural Change in Colombia (Praeger, New York 1968). Professor Flinn, now at Ohio State University, Columbus, continues to work on those data.

generate interest in and use of the data collected. Thus he developed three criteria for the decision whether or not to include a given question in a multipurpose household survey: "Additional information to be collected on a topic depends upon (1) its economic impact or weight; (2) the variability in the characteristics under study, and (3) costs of collecting additional information."[132] He also expressed the view that "developing the demand side, especially with respect to its administrative considerations, was more important and of higher priority than augmenting the supply side" (Ono 1975, p. 4). Decisions on data collections can involve substantial sums of money over which policymakers maintain control. Thus any proposed changes in data collection proceddures must be defended to those who will pay for them.[133] Despite the problems and the costs, however, survey research seems to be a relatively low-cost and effective means of learning more about the poor and the way in which policy and programs may affect them.

A potentially useful innovation in social research would be to combine the product of multipurpose household surveys with the results of participant observation, a method developed and used successfully by anthropologists. The combination would add depth to the survey data and

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132 Mitsuo Ono, "Follow-up report on developing a feasible method for collecting labor utilization, earnings, and other social and economic data in Southeastern Asian countries," mimeo, National Center for Social Statistics, US HEW, November 1975, p. 4.

133 For a listing of sample survey projects carried out in the ESCAP region reported to that international organization see UN ESCAP, Sample Surveys in the ESCAP Region, Twelfth Report (Jan-Dec 1974), Bangkok, July 1975, 176 p. This report does not appear to be complete.

breadth to the participant-observer data. Some advance on this front was made by the Laguna rural survey project in which observers clocked the daily activities minute by minute of all members of a dozen rural households. These data could then be used as estimators of other, similar households in the larger sample of 571 households.[134] This technique could be extended to other sample surveys.

Any consideration of data gathering in the future must give careful thought to this administrative dilemma: Program administrators are closest to the data and the operational problems and thus know what information is needed; but they are at the same time the group most likely to have a stake in altering the truth when it seems necessary to do so 'for the good of the program.' Perhaps a workable arrangement might be to have program managers feed questions into multi-purpose household surveys over which the managers would have no control, either as to sampling procedure or the disposition of the results of interviews.

E. Non-Quantitative Aspects of Welfare. The pioneering effort to apply quantitative measurement to factors affecting welfare often not counted in national income and product data is that of two Yale economists, Nordhaus and Tobin.[135] Now that the study of progress

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[134] See Elizabeth King, "Time allocation in Philippine rural households," Discussion Paper No. 76-20, University of the Philippines Institute of Economic Development and Research, School of Economics, August 1976.

[135] William Nordhaus and James Tobin, "Is growth obsolete?" Fiftieth Anniversay Colloquium V and Milton Moss, ed., The Measurement of Economic and Social Performance, National Bureau of Economic Research, New York 1972 and 1973.

criteria for alleviating poverty has passed so far from debt-service/ export ratios and two-gap models, analysts should confront those welfare issues in which the assumption of correspondence between measured material improvement and 'happiness' or welfare is not likely to be valid.[136] A key finding of research on poverty in developing countries has been that increased earnings from market work, the component of income that is the most important share of the measured income of the poor, do not necessarily bring about improvements in other measurable indicators of well-being. Data on income are useful for estimating the impact of development efforts on the quality of life of the poor, but income data alone are not sufficient.

Often, the divergence between measured improvement and perceptions of stagnation arise from the fact that the costs of economic progress go unmeasured. For example, the higher agricultural productivity of Green Revolution hybrid seeds is achieved at the riskiness of crop destruction because of the narrow genetic range of those seeds. Infant mortality can be reduced substantially by increasing use of potable water; but unless piped water access is extended, lower infant risk is bought at the cost of long walks to pure sources of water. Extension of irrigation systems which raise incomes often brings schistosomiasis along and thus worsens health conditions. These are cases, in the economist's lexicon, of technological external diseconomies. The costs of progress ought to be in the back of some minds while benefits are being measured.

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[136] Richard Sennett and Jonathan Cobb, The Hidden Injuries of Class, New York 1972, analyze the psychic costs of social and occupational mobility.

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