INFORMATION SYSTEMS FOR PROJECT MANAGEMENT AND EVALUATION IN NORTHERN TANZANIA:

A CASE STUDY

by

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CASE STUDY:
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INTRODUCTION

Much has been written in recent years concerning how most effectively to structure systems of data collection, analysis and dissemination designed to assist in development project management and evaluation. The systems that have been designed vary widely, but the greatest emphasis has been on building some variation of a "centralized" data collection and analysis capability. Such a system typically involves a central government ministry or project management unit identifying data needed for collection, devising structured data collection instruments, training a cadre of enumerators, supervising the data collection, and carrying out analysis at the center. This approach often uses a computer capability for data processing and analysis.

Information systems have seldom been developed to use local-level staff and project participants as the primary actors in data collection and analysis; nor have they focused on identifying the principal project decisionmakers from the village level upwards, and structuring a system to meet their needs. One system that uses the latter approach is being implemented in the

Hanang District Village Health Project in northern Tanzania.[1] This project, financed by Coordination in Development, Inc. (CODEL), through a USAID grant, has been underway for the past year; the experience gained to date from the structuring and evolution of the information system that is built into it presents unique insights into the implementation of such an approach

This paper describes the project itself and the information system as initially designed; it analyzes changes that were made in the system over time and draws conclusions that have applicability elsewhere.

THE HANANG VILLAGE HEALTH PROJECT

The Hanang Project is designed to develop a process for improving the health of villagers in Hanang District, which is composed of approximately 100 villages with a total population of 225,000. The principal thrust of the project is the improvement of village health through preventive medicine, focusing largely on the health of children. It includes the following discrete activities:

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[1] Development Alternatives, Inc. (DAI), has an ongoing contract to provide assistance to the design and implementation of the Hanang information system. Data sources for this paper include the original information system design, developed by the project staff in conjunction with DAI assistance, the revised system as developed by the project personnel, and discussions with the Hanang staff in March 1978.

- Health education related to nutrition, sanitation and hygiene practices. This includes, for example, encouraging improved diets through increased consumption of locally produced -- and protein rich -- beans, greater utilization of latrines and personal cleanliness.

- Health education related to prevalent communicable diseases, their prevention, causes and cures. This involves gaining an understanding of the most common diseases and the practices that are used to cure them. One important aspect of this work is that of learning considerably more about traditional attitudes concerning cause and effect relationships between diseases and their presumed cures. Such practices as making incisions or extracting pieces of flesh to cure certain diseases are current in the project area. Understanding present practices and attitudes is important in determining both the emphasis and the approach in this dimension of health education.

- Maternal and child health care services provided through village clinics. Mobile clinics visit project villages monthly on a predetermined schedule to offer vaccinations to children and provide ante and postnatal care to mothers. The clinics are organized from local dispensaries, and both the dispensaries and the villages must commit certain resources as a condition to the commencement of clinic services. Villagers must make a structure available for holding the clinics, and provide such necessary equipment as an examining table or bed, and benches or chairs. Dispensaries must have vaccines and drugs available as well as Maternal Child Health Kits and refrigerators.

The implementation arrangements for the project build on the decentralized political and administrative structure found in Tanzania. In that system villages are organized around a formalized structure: it is intended that Village Councils will be responsible for planning and implementing a wide array of village activities, including those aimed at increasing produc-

tion and providing social services. The Councils are comprised of representatives elected by the villagers; each member is responsible for organizing a specific activity, such as agriculture production or education. The Councils are headed by a Village Chairman and Secretary. Villages are subdivided into smaller units (kitongoji), each comprising approximately 100 households. Those activities initiated by Village Councils are, in most cases, administered through these smaller units.

In the context of this general village structure, the health activities undertaken by this project are organized as follows:

- From each project village two residents (Village Health Trainees) are chosen who are responsible for carrying out the project activities, i.e., organizing the health education work, assisting clinic staff in running the clinics.

- These trainees, after having been selected, receive ongoing training in a wide variety of health-related matters. The training is a combination of classroom work and field practice, commencing with one month of formal training and continuing with one month of fieldwork in their own villages. This process is repeated through three cycles, after which periodic, shorter workshops are conducted throughout the life of the project. The instruction ranges from substantive health issues -- training in nutrition, sanitation and hygiene practices, methods of disease identification and treatment -- to methods of adult education for use in health education work, to training in data collection and analysis techniques. The adult education training revolves around the psychosocial approach of Paulo Freire, while the instruction in data collection and analysis techniques ranges from the identification of data needed for collection to various data collection methodologies and approaches to analysis.

> Each 100-house village unit, or kitongoji, is further divided for purposes of project implementation into smaller 15- to 30-house units, referred to as village health units. From each such unit villagers choose one representative, a Village Health Leader (VHL), who is to work with the Health Trainees in implementing the project. Trainees are responsible for instructing VHLs in health education techniques; the latter subsequently implement the education on the health unit level. It is the VHLs, working with a relatively small number of households, who are the principal contacts between project activities and individual villagers.

Above the village level are additional officials and staff responsible for project implementation. Project personnel, working at the district level, consist of a complement of health/administrative/data collection staff. Below the district but above the village are Division Health Leaders (DHLs), who act as the liaison between the district staff and the village Health Trainees. The district is divided into four divisions, with each DHL responsible for all villages in his/her division. Finally, at both the district and division levels are party officials and Ministry of Health staff, who have overall responsibility for the project.

While the project is thus designed around a village/division/district structure that is formally in place, in many instances the capability of the structure to plan and deliver development resources is weak and has not been adequately tested. Equally important, much is yet to be learned about effective preventive health activities at the village level. A primary question being addressed by this project is how to utilize external resources,

in combination with locally generated resources, to influence behavioral change in villagers to improve the level of health. What approach to the delivery of project inputs -- principally efforts at health education -- can effectively accomplish these changes? How much can health education efforts be decentralized? Can Health Trainees with a minimal formal education carry out the work? Can these individuals effectively transfer the educational techniques to VHLs, most of whom have no previous formal training? Can VHLs then influence the attitudes and behavior of villagers in their respective health units?

It was in search of answers to these types of questions that an ongoing system to monitor and evaluate project implementation and impact on village health was incorporated into the project. The system was intended to be a low-cost approach with the potential both of being sustained in the project area subsequent to the termination of external project funds and of being replicated in other districts in Tanzania.

THE INITIAL DESIGN OF THE HANANG HEALTH PROJECT INFORMATION SYSTEM

The first step in developing the monitoring and evaluation system for the Hanang Project was for the DAI consultant to work with project staff and other involved government officials at the division and district levels to determine:

- The objectives of the information system;
- The data requirements necessary for collection;
- The research methodology to be used, including data sources, collectors and appropriate analytical techniques; and
- The most appropriate approach to information dissemination.

Objectives of the Information System

The three specific objectives of the project monitoring and evaluation effort, settled on by the project staff, were:

- To gain an overview of village health conditions and problems. The principal need for this information is to assist planning activities on the village level, e.g., to help Village Trainees in their efforts to define and carry out health activities appropriate to a given village.
- To monitor project implementation in terms of the financial, commodity and extension inputs into the health education and clinic activities, the direct project results or outputs, and the initial effects of project activities on the behavioral patterns of villagers. The information is used largely for project management purposes, i.e., to track activities in order to determine whether what was scheduled has in fact been accomplished, and to identify problems, assess their causes and prescribe solutions. Monitoring information is used to signal needed actions on the part of the project staff with regard both to implementation and to possible modifications in project design.
- To evaluate the impact of the project on the health of villagers. This component of the information system looks at both behavioral changes related to, for example, nutrition and hygiene practices, and changes in the incidence of selected diseases. Its primary use is for determining the appropriateness of project approaches, possible needed changes in project design, and the potential for replicating the approach elsewhere.

The demands on the information system were great: tracking project progress, looking at project impact, identifying problems and their causes, and prescribing solutions. The approach used to develop the system was to specify data requirements prior to project start-up, as well as a collection and analysis methodology and a system of data dissemination, recognizing that much was unknown regarding each of these, and that the system would have to be sufficiently flexible to change as experience showed what would and would not work.

Data Requirements, Research Methodology and Information Dissemination

The point of departure for specifying data requirements was to determine the information needs of decisionmakers for specific project-related issues from the village through the national level. Additional data related to broader health issues, while perhaps interesting, would be superfluous for project decisionmaking. Ideally, data specification would first involve understanding the decisionmaking process -- what decisions are made by whom, based on what information. From this first step data requirements for specific project purposes would be developed. The goal was to anticipate the types of health decisions that would have to be addressed as the project got underway, through discussions with project staff and local leaders. Since this process meant projecting future possible decisions and data needs for them, it was not possible to specify all monitoring and evaluation requirements adequately. Data requirements would have to

be modified over time as experience was gained. It was possible to establish the following preliminary list:

- In the village, information on health problems and conditions is needed for both planning and project implementation purposes by the Village Trainees and the VHLs, as well as by other local party and government officials: the Village Chairman, Secretaries and Village Development Committees. In addition, villagers themselves need information on improved nutrition and hygiene practices and how such practices relate to the incidence of various diseases prevalent in the village.

- Division Party Secretaries and DHLs should know the progress of health education and clinic activities and problems being encountered, in order to make management decisions designed to facilitate implementation. Health center personnel on the division level must have data on disease incidence, broken out by area, and a good notion of the nature of and reasons for various nutrition and hygiene practices being followed.

- Finally, on the district, regional and national levels, numerous decisionmakers need various types of monitoring and evaluation information. District Ministry of Health personnel and project staff need to know whether project implementation is proceeding smoothly and whether the project is having the desired health impact. Regional and national officials, both party and government, need to be kept informed of project impact and to understand the strengths and weaknesses of alternative project implementation strategies, in order to make decisions concerning possible project replication.

On the basis of these generally defined information needs, the project staff developed an initial set of data points for collection. The data points, collectors, sources, and methods of collection and analysis need to be viewed in the context of the objectives of the information system already described.

Because data requirements and collection methodologies for the first and third objectives on page 7 overlap, they are treated together; the second objective is discussed separately.

Gaining an Overview of Village Health Conditions and Evaluating Project Impact

As originally designed, data to be collected for these purposes fell under two general headings -- descriptive village data and baseline data. Both of these types of data were intended to provide the Health Trainees with some understanding of village health conditions and problems. In addition, the baseline data were needed to measure project impact over time (for evaluation purposes). These data, as initially specified, are shown in Table 1.

TABLE 1

INITIAL DATA REQUIREMENTS OF HANANG INFORMATION SYSTEM

Data	Collector	Data Source	Collection Method	Intended Use
I. DESCRIPTIVE VILLAGE DATA				
1. Name of village, division, ward	Trainee	Village informant	Discussion	For Trainees in understanding magnitude of population with which they would work, distance from service centers and primary economic activities of village. All relate in varying ways to health issues: availability of health care, available diet, available consumer goods.
2. Number of families in village	Trainee	Village informant/ village observation	Discussion, house count	
3. Number of ten-house units in village	Trainee	Village informant	Discussion	
4. Stretch (width and length) of village	Trainee	Village informant	Discussion, walking village diameter	
5. Miles from administrative center, market center, and dispensary/hospital	Trainee	Village informant	Discussion	
6. Services being provided in village (including health services)	Trainee	Village informant	Discussion	
7. Main agricultural activities (crops and livestock)	Trainee	Village informant	Discussion	
II. BASELINE DATA				
A. General				As "classification variables," against which health behavior indicators and disease incidence variables will be cross-tabulated.
1. Tribe	Trainee	Household sample	Discussion	
2. Number of years of formal education	Trainee	Household sample	Discussion	
3. Type of roof on house (Indicator of economic well-being)	Trainee	Household sample	Observation	
B. Health Indicators				Variables in B.1., 2., and 3. are behavioral indicators that serve as proxies for levels of nutrition, hygiene and sanitation. They provide knowledge of village health conditions and are used in examining the relationship between health behavior and disease incidence.
1. Nutrition				
a. Number of times children fed per day	Trainee	Household sample	Observation	
b. Whether children are breast fed	Trainee	Household sample -- children ages 0-5	Discussion	
c. Number of times in past week when the following was served: eggs, fruit, green vegetables, meat, milk (response: often, seldom, not eaten)	Trainee	Household sample	Observation, discussion	
2. Sanitation				
a. Whether the house has a latrine	Trainee	Household sample	Observation	
b. Whether the house has a rubbish pit	Trainee	Household sample	Observation	

TABLE 1 (Continued)

Data	Collector	Data Source	Collection Method	Intended Use
B. Health Indicators (Continued)				
3. Hygiene				
a. How food in the household is stored. (covered, off floor)	Trainee	Household sample.	Observation	
b. Indicator of cleanliness of clothing (clean, partly clean, dirty)	Trainee	Household sample	Observation	
c. Whether household members wear shoes (adult males, adult females, children)	Trainee	Household sample	Observation	
4. Adequacy of supply of potable water				To determine the need for improved village water systems.
a. Source of water for humans/animals	Trainee	Household sample	Discussion	
b. Distance to water source	Trainee	Household sample	Discussion	
c. Sufficiency and cleanliness of water	Trainee	Household sample	Observation, discussion	
5. Vaccinations received by type	Trainee	Household sample	Discussion, clinic records	To determine the need for intensification of innoculation program
6. Social/cultural problems and beliefs that are detrimental to health	Data points must be defined with Trainees who represent different villages and tribes. The data collector will be, as above, the Village Trainee and the source of the household sample.			To provide an understanding of attitudes/practices that affect health, which the project may need to address.
C. Mortality/disease incidence				To analyze the impact of changes in health behavior on disease incidence and to track changes in disease incidence over time.
1. Mortality				
a. Births	Trainee	Household sample	Discussion	
b. Deaths	Trainee	Household sample	Discussion	
2. Disease incidence				
a. Measles	Village Health Leaders	Household sample - children ages 0-5	Collected monthly through discussion. Trainees record in journals monthly from Village Health Leaders.	
b. Whooping cough				
c. Gastroenteritis				
d. Round worms				
e. Eye Diseases (sore eyes)				
f. Kwashiorkor	Clinic staff		Collected monthly through observation/examination. Trainees record in journals monthly from clinic records.	

TABLE 1 (Continued)

Data	Collector	Data Source	Collection Method	Intended Use
2. Disease incidence (Continued)				
g. Marasmas				
h. Anemia				
i. TB		Household sample		
j. Leprosy				
k. Bilharzia				
l. Hookworm				
m. Malaria (spleen count)				
D. Village capability to identify and solve local health problems				As indicators of the capability of villagers to identify and solve local health problems through measuring (a) the extent of activities organized by the village and (b) the degree of participation of villagers in the activities.
1. Number of ten-house units with which Village Health Leaders are actively working	Division Health Leader	Village informants	Discussion	
2. Number and type of health education activities organized by village over past six months and number participating	Division Health Leader	Village informants	Discussion	
3. Number of health clinics in past six months in which village representative actively worked	Division Health Leader	Clinic staff	Discussion	
4. Number or residents using services of health clinics held over past six months	Division Health Leader	Clinic records	Examine clinic records	
5. Health related activities initiated by village over past six months	Division Health Leader	Village informants	Discussion	

Though at first glance this listing appears long and by implication overly complex, the project staff felt that it represented a set of data that was easily obtainable through either direct questioning or observation, and that the data collection was within the capability of the principal collectors -- the Health Trainees, DHLs and VHLs. Further, it was felt that it represented a minimum requirement for policy decisions. Based upon this data set a household questionnaire was designed, as well as collection instruments for obtaining descriptive village data and selected information from village clinics.

Organization for Data Collection. There is a wide array of staff involved in the implementation of the Hanang Project. The District Medical Officer -- the head of the Ministry of Health at the district level -- is the official head of the project but does not direct day-to-day operations. This is the function of the project director, who is assisted by two public health specialists, two community development nutrition specialists, a project financial administrator, a teacher, two registered nurse midwives, four Division Health Leaders, two Health Trainees per village, and one VHL per 15- to 30-house unit within each village. Support staff consists of two drivers, a clerk, a secretary, a mechanic and a watchman. In addition to this core staff, six additional personnel were hired specifically for the monitoring and evaluation work. A statistician was retained half-time, as well as a full-time Data Coordinator (responsible for data compilation, to be carried out at the district project headquarters),

a Health Information Supervisor to handle the field coordination throughout the district, and three data clerks. One of the public health specialists is in charge of overall management of the information system. All staff receive salaries with the exception of the village-level personnel -- the Health Trainees and VHLs -- who work on a voluntary basis.

The central actors in the collection and analysis of data for gaining a village health overview and for project evaluation are the Health Trainees, VHLs and DHLs, the public health specialist in charge of managing the system, and the six central project information system staff. The Health Trainees, DHLs and VHLs are the principal data collectors, while the rest of those involved in the information system carry the bulk of the analysis and dissemination responsibilities. In addition, system design involved a substantial consulting input, consisting of three visits (of one to three weeks each) during the first year of project implementation by Development Alternatives, Inc.

Table 2 is instructive in understanding the relationship of the information system to total project activity. The six staff working full time on the information system (three management/implementation and three support staff) were hired specifically for monitoring and evaluation work. As a percentage of total staff in each of these two categories, they represent a significant input, though the total numbers of personnel involved are small. Further, the ten staff who are working part time on

TABLE 2

PROJECT STAFF INVOLVED IN INFORMATION SYSTEM WORK

	District/Division Level Management/Implementation Staff (n = 17)		Support Staff (n = 9)		Village Level			
					Village Trainees (n = 64)		VHLs (n = 650)	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Staff working full time on information system	3	17	3	33				
Staff working part time on information system	10	59	-	-	64	100	650	100

information system activities are involved largely in data collection and analysis for purposes of monitoring project implementation. They are, for the most part, reasonable only for tracking the project activities for which they are directly accountable.

Probably more significant is the role of the village-level staff. The high degree of part-time involvement of these personnel reflects the fact that the information work is an integral part of all project activities and cannot be easily separated. Much of the work of the 64 trainees and the 650 VHLs is to learn from the villagers what the prevalent health problems and issues are and to determine how best to conduct the health education and clinic work. The information system is intended to systematize and facilitate their work, so data collection, analysis and use become part of the normal day-to-day activities. Whether the system functions depends to a large degree on these workers

and whether they can obtain reliable data and utilize the resulting information effectively.

Further, a primary goal in the design of this project was to define a workable collection and analysis system that would be sufficiently inexpensive to be replicable in other districts in Tanzania. Project costs specific to the information system, excluding consulting costs, are approximately 12 percent of the total; if consulting services are included, they amount to 17 percent. These costs include such items as salaries, travel expenses, per diem for travel, and some equipment. They do not include wages for the Village Trainees or VHLs, since these staff work as volunteers. If a monetary value were placed on their services, the percentage of project costs specific to the information system would rise.

The personnel breakdown and the cost percentages raise interesting questions concerning the inclusion of an information system of this type in a project. The decision about whether such a system should or should not be included (whether it is too costly) ultimately revolves around whether the system can be shown to make a difference in project performance -- whether it assists in management decisions and provides insights into needed project modification or redesign. If significant benefits do accrue, then the level of personnel involvement and associated costs can be justified.

Sampling, Data Analysis and Dissemination. As indicated in Table 1, the bulk of the data are to be collected from a village household sample utilizing a single baseline questionnaire. The sample was stratified into households with and without children under five. This was done to test the hypothesis that health behavior would vary between such households. The respondents were to be heads of households, and the sample was to be chosen by utilizing a table of random numbers. The collection methodology for this dimension of the information system, using a formal collection instrument, was thus structured and involved no informal approaches to data gathering (in contrast to the project monitoring discussed later).

The data gathered to provide an overview of village health conditions would be initially tabulated by hand by the Health Trainees and DHLs and passed on for review by the central project staff. This information was to be used by trainees and project staff in making decisions concerning what project activities should be stressed and/or initiated, and for use in discussing health issues with villagers. For presentation in villages, the trainees and central staff would collaborate to decide the most useful way to show the information, e.g., health problems displayed graphically through diagrams or charts. Summarizing the data would be the joint responsibility of both trainees and the central staff.

Data processing and analysis for project evaluation would be carried out by the central monitoring and evaluation personnel

and would be relatively simple. The data would be punched on cards, permitting cross-tabulation of selected data with the use of a sorter. The analysis would seek to determine changes in health behavior attributable to the project, and to examine the relationships between health behavior and disease incidence. Two categories of comparisons would be made using the baseline data: tribe, years of formal education, and economic well-being against the health indicators (indicators of behavior related to nutrition, hygiene and sanitation, which will be measured over time for change); and health indicators against disease incidence. Tests of statistical significance would be used to infer whether observed changes can reasonably be attributed to the project (are significant) or are due to non-project related influences.

The analyzed evaluation data would have multiple uses. The information would be disseminated from project staff back to villages for use in demonstrating relationships between health behavior indicators and disease incidence. Project and district staff would utilize the findings to modify project strategy, and regional and national officials would require the information for decisions relating to the replication of health activities in other areas.

Monitoring Project Implementation

Information for project monitoring -- or, more broadly, for management decisions -- is collected and compiled by the central project staff, the Health Trainees and the DHLs. The data initially identified by the central staff as most critical for

their purposes included financial data and data on the progress of specific project activities. The project's financial administrator keeps a running log of amounts spent, broken out by the type of expenditure, and tracks these amounts against total monies available.

The information identified for collection on the progress of project activities is illustrated in Form I. In developing this format, project staff initially considered listing project inputs against outputs. The alternative of specifying project "activities" (see Column 1 on Form I) resulted from the realization that this is how most implementing officers perceive their projects. They normally do not think in terms of inputs and outputs (and frequently find that the distinction between the two is not clear), but rather of a series of discrete activities that must be completed in the course of project implementation. The staff themselves would be responsible for specifying the activities important to track; because each person on the staff has a different set of responsibilities, the listing of activities for each would be different. The data collected would thus not be comparable and would not be coded. For each activity the staff would note the officer responsible (Column 2), the expected results and planned timing (Columns 3 and 4), and the actual results along with the time when each activity was accomplished (Columns 5 and 6). Finally, reasons for any differences between expected and actual results would be recorded in Column 7. This approach was designed to capture input and output data and to

Hanang Health Project

MONITORING DATA

Form I

CENTRAL PROJECT STAFF

Month _____

(1) Activities	(2) Officer Responsible	(3) Expected Results (Magnitude and Value where applicable)	(4) Planned Time		(5) Actual Results (Magnitude and Value where applicable)	(6) Actual Time		(7) Reasons for Difference Between Expected and Actual
			Start	Finish		Start	Finish	

Hanang Health Project

Form II

MONITORING DATA

DIVISION HEALTH LEADERS

Village: _____ Month: _____

(1) List Steps Undertaken in the Village Aimed at Making Progress in the Following Areas:	(2) Initiated by	(3) Expected Results	(4) Actual Results	(5) Reasons for Difference Between Expected and Actual Results
1. Health Education				
2. Health Clinics				
3. Health Related Activities				

provide other management information that would enable project staff to know, on a monthly basis, which activities are moving ahead as planned, which are stalled, what appear to be the primary problems facing activity implementation, and who is respon sible for solving the problems and seeing that implementation proceeds. It would provide the basic information needed for making management decisions.

A similar record of activity progress would be kept by Division Health Leaders for each project village in their respective divisions (see Form II). The original format for recording the information that they need differs from that which was established for the central project staff, in that the central staff is concerned with all activities undertaken by the project -- from building construction at district headquarters, to staff training, to village clinics. Division Health Leaders, on the other hand, are only called upon to help implement village-level activities. In Column 1 the various village activities to be undertaken are broken out by health education, health clinics and health-related projects. As in the case of the central staff, the DHLs were to determine which activities within these broad categories were most important to track and note them here. Columns 2 through 5 -- for specifying results and explaining why they differ from initial expectations -- are similar to but less comprehensive than the comparable information to be recorded by the central project staff on Form I.

The Health Trainees were also to keep a record of project activities taking place in the village and record them in monthly progress reports, which are required under the terms of the project. The format of these reports, shown on the following page, calls for the trainee's observations of developments related to the general categories of activities supported by the project, e.g., health education, clinic activities. They are intended to indicate actual progress made, as well as trainees' perceptions of approaches to and problems confronting the village health activities. It is designed to provide both DHLs and central project staff with some indication of the support needed by trainees in each village.

A final category of monitoring information to be collected by the project staff relates to initial project effects. Throughout the project, and before impact data are collected and project evaluation undertaken, it is possible to begin to examine its effects and to assess the strengths and weaknesses of the innovations being tried. It was intended that this information would be gathered by the DHLs and the Health Information Supervisor, through group meetings and individual discussions with villagers; the appropriate approach would vary by village and would be settled upon by the Health Information Supervisor in collaboration with the DHLs. In these discussions the staff would be seeking any initial indications that the project was having an impact on village health. For this purpose they were

MONTHLY PROGRESS REPORT OF VILLAGE TRAINEE

Name: _____

Village: _____

Ward: _____

Division: _____

Date: _____

Since last month's report what developments have there been with regard to:

Health Education: _____

_____

_____

Health Related Activities: _____

_____

_____

Collaborative Efforts with Various Leaders: _____

_____

_____

Clinic Activities: _____

_____

_____

Problems: _____

_____

_____

_____

Signature

to use the data points for measuring project impact as a checklist. The collection of this information would continue throughout the implementation of the project.

An important issue in developing a project monitoring system is the objectivity of those collecting the data.[1] This consideration becomes particularly important when the data collection is done by project staff who have a stake in project success. Several steps were taken to ensure reasonably objective reporting in this project. First, the central monitoring and evaluation staff -- the six employed specifically for this work -- are to spot-check project monitoring data, both the data collected by the central project staff and the progress information collected by the DHLs and Health Trainees. These staff were hired as communicators whose personal gain was not directly dependent upon project success, but rather upon discovering successful project approaches, which should provide an incentive for objective reporting.

Second, the Division Health Leaders and Health Trainees are involved in project problem solving through frequent meetings with central staff. This should place the emphasis upon identifying approaches that work best, as opposed to "proving" that the approach being tried in one particular division or village is successful. It should also mitigate any pressure from the

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[1] This issue is one dimension of the larger problem of project staff perceiving monitoring and evaluation activities as threatening to their self-interest, e.g., threatening the perpetuation of project activity, with the result that the system is not utilized.

division and village staff to show that everything is progressing smoothly, and encourage objectivity.

The initial design spelled out the following data sources for monitoring information, as well as collection techniques and analysis:

- Monitoring data needed by the central project staff (Form I) would be collected by them on an ongoing basis from the officers responsible for implementing each project activity. For example, the course curriculum for the Health Trainees must be prepared and ready for review prior to the start of training. The Project Director will utilize the monitoring form as a reminder that this activity must be completed, and will check with the person responsible for curriculum preparation. If problems have arisen, resulting in delays, the Director must make decisions aimed at overcoming the difficulties. If the causes of the problems are not clear, the monitoring and evaluation staff might have to make a special inquiry about the nature of the difficulties and pass the information on to the Director before a decision can be made.

  While the primary purpose of this monitoring data is to allow the staff to track financial flows and activity progress on a continuous basis, and data can also provide the basis for summarizing overall project progress and problems for use by district government and party officials. These data would be collected from the Project Director and summarized every three months by the monitoring and evaluation staff for that purpose.

- Sources for monitoring data collected by Division Health Leaders (Form II) would include Trainees, VHLs, Village Chairman and Village Secretaries. The data would be collected on a continuing basis as project implementation proceeds, and a separate form would be kept for each village. The emphasis was to be upon tracking progress of health education activities and village clinics, as well as such health-related activities as planting vegetable gardens aimed at increasing nutrition levels. These

data would be compiled quarterly by the central monitoring and evaluation staff as they work with the DHLs.

Observations on the Initial Information System Design

The approach taken to the design of the information system and the resulting structure of the system was aimed at overcoming a series of problems frequently encountered in making such systems work. The following issues were specifically addressed:

- In order to avoid developing a system that was too complex and costly, the data to be collected were confined to those needed by project decisionmakers. Such decisionmakers include a wide array of individuals, from villagers in the project villages, to village leaders, to division and district staff, to officials on the national level.

- All information needed for monitoring and evaluating project activities cannot be specified prior to project commencement. The system was intended to be flexible enough to change as more was learned about what information was or was not needed.

- The specification of data requirements -- both the initial specification and modifications made over time -- can be done satisfactorily only if the principal decisionmakers who are to use the information are involved. Otherwise much of the data collected will be irrelevant to the needs of the intended users. In the Hanang case both project staff and others who would be involved with project decisions were brought into the initial specification of data requirements and were to be drawn upon over time to identify needed modifications.

- A workable system requires a collection and analysis methodology tailored to the capabilities of those implementing the system. Data points must be "collectible" within the constraints of project resources, and the analysis must avoid being overly complex. The Hanang system thus focused on collecting a limited

set of easily obtainable data and analysis that was no more complex than representing the data visually for dissemination back to the villagers or making comparisons of selected variables using simple cross-tabulations.

- It is critical that: (a) the information be disseminated on a timely basis in order to reach decisionmakers in time to be used; and (b) the information reach the decisionmakers in a usable form. Thus, for example, health information was to be passed back to villagers through diagrams and graphs described earlier, a form intended to facilitate discussions with villagers concerning prevalent health problems.

- In order to help ensure the collection of reliable data, the project employed information system staff whose mandate was project monitoring and evaluation, and whose personal gain was not directly dependent upon project success. In addition, frequent meetings were to be held with the principal data collectors to emphasize the goal of identifying approaches that work best, as opposed to proving that the approaches being pursued are successful.

- An effort was made to structure the system as a part of ongoing project activities, rather than as an additional task imposed on an already fully employed staff. It was recognized that management and evaluation information is, as a matter of course, collected on a continuous basis -- mostly through informal communication and often in an unstructured way. The problem became one of identifying the data that needed to be collected and analyzed in a more systematic manner. This approach was intended to demonstrate to project management the potential value of the information system.

The project was designed around the concept that much was not known about effective approaches to village health activities, and that it would be modified as more was learned. This flexibility, often absent in project design, offers the potential for the use of monitoring and evaluation information to make

needed changes. In cases of inflexible project designs where, for instance, approaches to project activities and the expenditure of project resources are predetermined, the use of information for project redesign is not possible.

MODIFICATIONS IN THE INFORMATION SYSTEM DURING THE FIRST YEAR OF IMPLEMENTATION

A number of changes have been made in the Hanang information system during the first year of its implementation. Some reflect minor changes in such things as the specification of data points or collection methods. Others represent more fundamental changes in emphasis and approach. In each instance the changes have been made to fit the system better to the project environment, in essence, to make the system work.

Changes in Data Requirements, Research Methodology and Data Dissemination

As was done in the previous section, it is useful to discuss the modifications that have been made in the context of the stated objectives of the information system.

Gaining an Overview of Health Conditions and Evaluating Project Impact

The specification of data to be collected for purposes of providing a village health overview, as well as for project eval-

uation, was modified considerably by the project monitoring and evaluation staff as a result of testing the first set of questionnaires. The changes exemplify the principle that it is difficult for project staff and others involved in the project activities to specify in advance what information would be needed. The changes became necessary for a variety of reasons: (1) some data points proved, in practical terms, to be uncollectible; (2) several proxies for levels of health proved to be inadequate indicators; and (3) new data, which had not previously been perceived as necessary, were identified and added to the questionnaires. The modifications and additions to the data points, and the reasons for the changes, are shown in Table 3.

In every instance these modifications represent changes that were suggested by the testing of the initial set of data. Few are surprising. They do involve a proliferation of surveys -- the addition of a census, health survey, nutrition survey, and environmental survey. Some of these represent a different way of collecting the same type of data originally included in the baseline household survey, a change in collection methodology dictated by a better specification of what was needed and the ease/possibility of collection. Others involve the collection of additional data.

As an example, the health survey was added for two reasons. First, under the original design, the information collected to gain an overview of village health conditions was gathered largely through a structured questionnaire. This resulted in

TABLE 3

MODIFICATIONS TO INITIAL DATE REQUIREMENTS OF HANANG INFORMATION SYSTEM

Modifications/Additions to Initially Specified Data	Reasons for Changes
I. DATA TO GAIN AN OVERVIEW OF VILLAGE HEALTH CONDITIONS (expanded from Descriptive Village Data, see Table 1).	
A. Descriptive Village Data The data listed in Table 1 under this category remain unchanged.	
B. Household Census A simple household census was added, which includes: • Household identification number; • Kitongoji; • Persons in the household; • Persons in the household caring for children 0-5 years; • Children in the household 0-5 years broken out by sex.	The population from which the household sample was selected was changed from all household heads stratified by those with and without children to individuals caring for children from 0-5 years.[1] The census was used for the following: • Sample selection; • Partial data needed for determining mortality rates; • Specifying health units from households in a Kitongoji. The census was also utilized as a data collection training instrument for Health Trainees. The household questionnaire proved to be a difficult instrument to administer initially.
C. Health Survey This survey is intended to provide Trainees and VHLs with an overview of village health problems and is at the same time an integral part of the health education work. It is the primary tool with which to train Health Trainees and VHLs in the Freire method of adult education. The survey is initially carried out by the Trainees (and subsequently by the VHLs under the supervision of the Trainees). It is an unstructured approach to identify health issues as perceived by villagers. Trainees record, as a result of informal conversations in the villages, health-related issues as expressed by villagers. They then illustrate these issues in a variety of ways, e.g., through pictures, posters, village plays. In presenting these concepts, villagers are asked what they perceive is happening, whether it happens in their village, why it is important, whether any problems arise from it, and what could be done about it. The approach is intended to identify important health matters and assist villagers in finding their own solutions to them.	This approach was chosen as the best vehicle to implement health education. It represents a good example of data gathering as a substantive part of project work and not an "extra" exercise beyond the normal implementation of the project.
II. EVALUATION DATA	
A. General Baseline Information	
1. Tribe and number of years of education were retained.	
2. Type of roof on house was discarded, replaced by size of farm and number of livestock.	Type of roof on house proved to be an insufficient indicator of well-being. (Less than two percent of households sampled had anything but a thatch roof.)

[1] This change was made as a result of a better specification of project objectives, i.e., that the project focus would be on improving the health of children.

TABLE 3 (Continued)

Modifications/Additions to Initially Specified Data	Reasons for Changes
II. EVALUATION DATA (Continued)	
B. Health Indicators	
1. Nutrition	
a. Number of times children fed per day was retained.	
b. In addition to whether the child was breast fed, how long he/she was breast fed and at what age supplementary food was started.	Data about whether children were breast fed were insufficient to give an indication of nutrition level/behavior.
c. Food served in past week was reduced to include only legumes, eggs and milk.	Initial data collection revealed that malnutrition is primarily the result of insufficient protein. Thus, diet variables were reduced to protein-rich foods.
2. Sanitation - deleted from the household questionnaire.	Whether a household has a latrine is not a satisfactory indicator of latrine use. Because of the sensitivity of the question of use, the Trainee could not obtain the information. As a result an environmental survey was devised. It is administered by a village health official (Health Auxiliary); see II.F.
3. Hygiene - Data on how food is stored were deleted.	Because this issue is sensitive it cannot be asked. Observation became impossible because of little or no light (few windows) in the houses.
4. Adequacy of supply of potable water - Deleted from household sample.	There is normally a common water source for a village. Its existence and cleanliness will be observed by the Trainees as part of the Descriptive Village Data.
5. Vaccinations - retained.	
6. Social/Cultural Problems and Beliefs.	
A knowledge/Attitude survey has been developed and is being used along with the household questionnaire. It seeks knowledge and attitudes concerning disease causes and treatment.	Knowledge/Attitude variables were not defined when the evaluation system was developed.
C. Mortality/Disease Incidence	
1. Mortality - deleted from the household sample. Will be collected monthly on the village population by the VHLs.	Village Health Leaders can easily track births and deaths in their respective health units. Job was much more difficult for Trainee.
2. Disease incidence - deleted from the household survey. Part will be collected by VHLs from the health units and part through the nutrition survey (II.E.).	
D. Baseline Data - Division Health Leader Survey of Village Capability to Identify and Solve Local Health Problems.	
Variables are specified in more detail and included in Trainee and DHL monitoring activity.	Greater specificity was required to track health education work adequately.

TABLE 3 (Continued)

Modifications/Additions to Initially Specified Data	Reasons For Changes
II. EVALUATION DATA (Continued)	
E. Baseline Data - Nutrition Survey.	
A nutrition survey was devised, to be carried out yearly by clinic doctors to measure the nutrition level of all children 1-10 years in the project villages. It includes clinical data used for assessing nutrition.	The nutrition variables in the household survey proved insufficient as proxies for levels of nutrition. They were left in the household survey (as noted in II.B.1.) as indicators of behavior related to nutrition practices. The Nutrition Survey was added because of the importance of tracking nutrition levels. It is feasible for clinic doctors to administer it.
F. Baseline Data - Environmental Survey	
This survey was noted in II.B.2. It includes data on human waste and rubbish disposal.	See comments II.B.2.

collecting on those data points that had been identified as important before the project commenced and did not allow for their modification. Further, this formal approach could not capture important differences between villages, which had to be understood before deciding upon specific activities to be undertaken in each. The health survey was designed to rectify these problems. It utilizes the methods developed by Paulo Freire, which focus on informal dialogue as a means of determining what health issues and problems are important in a particular village [see the discussion in Section I.C of Table 3]. Second, this survey was intended as the principal tool for use by Health Trainees and VHLs in the village health education work.

The experience with data collection during the first year was also instructive. As noted in Table 2, the questionnaire initially proved a difficult instrument for the trainees to administer. The result was a redefinition of the training for data collection. The training began with classroom discussion of the census data, its definition and collection techniques. This was followed by the central monitoring and evaluation staff "walking through" the collection of the data with trainees in four of the project villages. The process proved workable; its replication is possible with the DHL, rather than the central staff, assisting the trainees in the field training.

The intended data analysis was also modified in terms of the type of processing used. The analysis that was originally spelled out was thought to be both simple and appropriate given

the project resources. Everything would be done at the local -- largely district -- level, including simple cross-tabulations carried out with the use of a sorter. The system was changed to eliminate the sorter, and all analysis was performed by hand. This change was made to facilitate the work: the availability of a sorter was problematical, and the analysis could feasibly be done by hand.

These types of changes suggest the following:

- The project has gone through a series of data requirement, collection and analysis modifications that make these dimensions of the system "workable." The changes represent a process of tailoring the methodology to the capabilities of those implementing the system.
- The data requirement changes reflect the needs of project decisionmakers. They were involved in defining the changes, and thus it can be surmised that the data, as now defined, are on the whole relevant to the needs of the intended users.

The one aspect of the system that has proved unworkable to date involves data dissemination. A major criticism of "centralized" information systems is their inability to deliver "usable" information on a timely basis. This problem has appeared in the Hanang system. Census data, descriptive health data, and baseline questionnaire data for some villages are already in. However, the analyzed data have not, in most cases, reached the decisionmakers. The problem does not reflect a constraint to carrying out the necessary data tabulation and analysis. Rather, it revolves around:

- Insufficient attention by the project staff to how critical fast turnaround of data is; and
- The unreliable nature of the initial data that were collected in the process of testing the collection instruments. The result was a tendency for the staff to discount all as relatively unusable; they thus did not ferret out those that were usable, do some preliminary analysis, and get information back to the appropriate decisionmakers.

Monitoring Project Implementation

The project monitoring system has been changed drastically from its original form. The formats devised by the central project staff (at the district level) and the DHLs for tracking project inputs and outputs, identifying problems and suggesting solutions were never used. The Health Trainee monthly reporting form, while filled in, provided only general information, which was not comparable across villages and proved to be of little value.

This experience prompts several observations. The concepts upon which the original forms were devised were likely not valid. Most of the central project staff did not feel the need for nor wish to use a detailed tracking of activities that they themselves were to define and for which they would be held accountable. There appeared to be particular reticence toward careful monitoring of actual accomplishments against planned progress. A more acceptable alternative was to simply record progress rather than measuring it against a target. The changes that have been made reflect a less structured approach for central project staff and a considerably more structured and detailed approach for the DHLs, Health Trainees and VHLs.

The central staff each has his/her own tracking system, and each system varies in detail and form. The project director, for instance, utilizes a calendar on which to record all monitoring data that she wants to track systematically. The financial officer keeps detailed records of all financial flows. Other staff, however, record little information in a systematic way.

The monitoring by the field staff, on the other hand, has become more detailed. DHLs monitor trainee performance, as well as village health activities, in considerable detail. Instead of the general categories of information asked on their initial monitoring form (Form II), they now record by village the number and types of health-related meetings held, the stage of the health education work, and details of other health-related activities undertaken by the village. Trainee and VHL reporting is still more detailed, in that progress in each step of the health education work is recorded -- from the initial use of the health survey information returned to the village, to the resolutions settled upon for addressing health problems, to action taken toward their solution. The resulting data are comparable and allow for a far better assessment of progress and problems at the village level.

Though the system in its present form has been in effect only a short time, data collection is proceeding well. The single biggest concern involves the reliability of collection, particu-

larly on the part of the village- and division-level personnel. While the requirement that they monitor project activities is not of their own choosing, the data to be collected were partly defined by them. This fact, in conjunction with the ongoing dialogue between the field and central staff, which emphasizes the objective of finding workable approaches to project activities as opposed to proving that their efforts are going well, appears to be having the desired effect of encouraging reliable data reporting.

Finally, as in the case of evaluation data, the one large and important deficiency in the system to date is the lack of effective information dissemination. The conslusions concerning dissemination of evaluation data are valid in this instance as well: while there is the capability within the staff to analyze and disseminate information on a timely basis, too little attention has been paid to its importance.

CONCLUSIONS

A number of conclusions can be drawn from the Hanang case after one year of implementation.

The Necessity of Tailoring the System to the Needs and Potentials of a Given Project and Locality

The data requirements, collection methodology, and analytical techniques need to be tailored to the needs and available resources in each situation. In the Hanang case data requirements were defined through a process of: (a) specifying decision categories relevant to the project, identifying the critical decisionmakers, and defining data requirements to meet their needs; (b) involving the decisionmakers in the definition of the data needed; and (c) structuring the system to be flexible, so that it can respond to needed modifications over time (recognizing that information requirements cannot be specified adequately prior to project commencement). Each of these steps is considered essential. The result of this approach was the initial identification of a limited set of project-specific data, which was considerably modified during the first year of project implementation as more was learned.

The data collection methodology combines formal questionnaire surveys, structured to the capabilities of the data collectors, with informal, unstructured dialogue between villagers and project staff. Finally, data analysis is concentrated at the local level and is carried out by hand. Analysis ranges from simple cross-tabulations to depicting health problems and issues through illustrations, e.g., pictures and diagrams, to be used in discussions with villagers. Thus, both the collection

methodology and the data analysis are designed to avoid being overly complex and to reflect the capabilities of those implementing the system.

The assumption upon which this approach is based is that, if a system is tailored in this manner, the probability of it working will be greatly enhanced.

The Importance of Timely Information Dissemination

Monitoring and evaluation systems are typically criticized because the information generated is not disseminated in a timely manner and so is not utilized. This charge is most often made of centralized data collection and analysis systems, where data are channelled from the field to a central government ministry or bureau, which handles analysis and dissemination centrally. Often the analysis takes months, if not years, and frequently many key decisionmakers, particularly at the local level, never see the information.

In order to avoid these problems a decentralized system was developed for the Hanang project. The effort was to define an approach that would meet the needs of decisionmakers from the village level upward. While the system has been tailored to the resources available to implement it, it has fallen short in getting the information back to the necessary decisionmakers. This situation has resulted not from an inability of the system to fulfill this function, but rather stems from insufficient attention given to its importance by the project staff and a ten-

dency on the part of the staff to discount the bulk of the initially collected data because of the unreliability of a portion of it. Nevertheless, the capability to deliver the information does exist in the Hanang case. Without this dimension of the system working well, there is no justification for initiating a monitoring and evaluation effort.

Problems in Structuring an Effective Monitoring System

Initiating a system to monitor project progress has proved particularly difficult. The first approach was to develop, with the staff who were to carry out the monitoring activity, forms for listing project activities, tracking project results, and recording problems encountered in implementation. For the central project staff this proved to be overly structured; they evolved alternative approaches, each adapted to the needs of the individual staff person. Of particular importance was the need to avoid establishing targets against which to monitor project progress. A far more acceptable approach was simply to record accomplishments as they occurred.

The monitoring by the field staff, on the other hand, became more structured. The first forms allowed the staff to define which activities they would monitor. The result was the generation of data that were not comparable across villages or divisions. The field staff has now been given consistent data to collect concerning village health education activities, clinic work, etc.

In addition, there is the problem of developing necessary incentives for staff to collect reliable data. In the Hanang project this difficulty has been addressed by: (a) hiring a monitoring and evaluation staff, charged with overseeing the implementation of the system, whose personal gain is not directly dependent upon project success; and (b) stressing with those involved in village-level data collection -- the village Health Trainees and VHLs -- the need to seek effective approaches to project implementation, as opposed to proving that one particular thrust is successful.

The approach to project monitoring has, like the rest of the system, evolved throughout the year. It appears now to have the support of the project management and to reflect their needs.

Balancing Information System Costs Against Probable Returns

The decision to include an information system in a project of this sort revolves around whether the system can be expected to make a difference to project performance. That is, the return from such a system is the improved basis it can provide for management decisions and project modification or redesign. This return is difficult to measure.

The cost of a system in a project such as Hanang is likewise difficult to measure. The data collection and analysis work is an integral part of all project activities and cannot easily be separated out. The primary data collectors in Hanang, for instance, are the village-level Health Trainees and VHLs,

the same staff who are the principal implementors of the village health education and clinic work. The information system is of use to them insofar as it systematizes the communication system that is already at work and makes their tasks easier. To the extent that the system is adapted to the needs of the decisionmakers and the capabilities of the project staff, and to the extent that it is delivering usable data to those who need it on a timely basis, it can be justified. The challenge is to reduce costs and increase benefits by adapting it to meet decisionmaking needs.