

MEASURING CAPACITY BUILDING

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Prepared By:

Lisanne Brown, Anne LaFond, Kate Macintyre

MEASURE Evaluation

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Carolina Population Center

University of North Carolina at Chapel Hill

123 W. Franklin Street, Suite 304

Chapel Hill, NC 27516

Phone: 919-966-7482; Fax: 919-966-2391

www.cpc.unc.edu/measure

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EXECUTIVE SUMMARY

Capacity building has become central to USAID health sector assistance strategies. Experience suggests that achieving better health outcomes requires both an injection of resources and adequate local capacity to use those resources effectively. Capacity is also critical to sustaining health outcomes and reducing reliance on external assistance, two stated objectives of US assistance in the health sector.

At the request of the Center for Population Health and Nutrition at USAID, The MEASURE Evaluation Project reviewed current knowledge and experience gained from efforts to monitor and evaluate capacity building interventions in the health sector. Written for USAID program managers and project designers, the report aims to disseminate the state-of-the-art in measuring the effects of capacity building activities in developing country health systems. The long-term goal of this work is to develop guidelines for field practitioners that reflect "best practices" in designing and assessing capacity building to improve or sustain health and population outcomes.

This effort drew upon a wide range of sources in order to develop a definition of capacity building and a conceptual framework for measuring the effects of capacity building, and to present details of recent experiences in capacity measurement, including key methodological issues, such as the role of indicators and indices, modes of data collection, and assessing trends over time. Sources include the published literature, unpublished documents describing efforts to measure the effects of capacity building, and informal discussions with practitioners in the field, covering both theoretical and practical perspectives. This report was also informed by a two-day meeting on Measuring Capacity Building in Health and Population Programs, hosted by the MEASURE Evaluation Project in November 1999.

The following is a summary of the main findings of the review.

Donor organizations are increasingly focused on the problems inherent in supporting sustainable health systems, requiring greater attention to building capacity within those systems. Despite this increased attention to capacity building, there is still little consensus on the role it plays in improving performance, or on approaches to measuring the effectiveness of capacity building interventions.

Capacity is defined as “the ability to carry out stated objectives.” In the literature, it is described as a process and an outcome. Capacity develops in stages and is multidimensional. In the health sector, for example, capacity is required at four levels: health system, organization, health personnel, and individual/community. Common to all characterizations of capacity is the assumption that capacity is linked to performance. Nevertheless, understanding capacity measurement is hindered by 1) a lack of common understanding of the nature of the relationship between capacity and performance; 2) variation in what constitutes “adequate” performance; and 3) the influence of the external environment on capacity and performance.

The authors define capacity building as a process that improves the ability of a person, group, organization, or system to meet its objectives or to perform better. Like capacity, capacity building is a multi-dimensional and dynamic process. It should lead to an improvement in

performance at each level and contribute to sustainability. The external environment also influences capacity building. An important distinction between this definition and others found in the professional literature is the addition of the individual and his/her community as an important level for capacity building.

This report presents a conceptual framework for mapping capacity that depicts the role of capacity in health system performance and the relationship between different levels of capacity (health system, organization, health personnel, and individual/community) and performance. The framework outlines the elements of capacity that are critical at each level, and breaks down these components into inputs (resources), processes (functions), outputs, and outcomes. The framework could serve as a starting point for determining critical gaps in capacity prior to intervention, assist in the choice of capacity building intervention, and finally guide planners in developing a strategy for monitoring and evaluating the effect of capacity building activities. Of note in this conceptualization of capacity, is the importance attached to the interaction between different levels in the health system and the role of the external environment.

Existing indicators to measure the effects of capacity building in health and population programs vary enormously. Most indicators focus on organizational and health personnel capacity because the majority of capacity-building interventions focus on these levels. We found fewer examples of system or community level capacity indicators and no indicators to measure the linkages between the different levels.

Similarly, most existing capacity assessment tools are designed to assess organizational capacity. The majority of the 16 tools reviewed employ several data collection instruments. Half used a combination of qualitative and quantitative methods. More than half of the tools are applied through self-assessment techniques, while three tools use a combination of self and external assessment. Self-assessment tools can lead to greater ownership of the results and a greater likelihood that capacity improves. However, many such techniques measure perceptions of capacity, and thus may be of limited reliability if used over time. Very few capacity assessment tools were developed or have been used strictly for monitoring and evaluation purposes, and few have been validated for this purpose. The use of a self-assessment tool as part of a capacity building intervention may preclude its use for monitoring and evaluation purposes.

Methodologies for assessing capacity and monitoring and evaluating capacity building interventions are still in the early stages of development. Experience of monitoring changes in capacity over time is limited. Documentation of the range of steps and activities that comprise capacity development at the field level is required to improve understanding of the relationship between capacity and performance, and capacity measurement in general. Finally, there are few examples of use of multiple sources of data for triangulation in capacity measurement, which might help capture some of the complex and dynamic capacity changes occurring within systems, organizations, program personnel, and individuals/communities.

Methodological challenges to measuring capacity relate to the inherent nature and role of capacity and capacity building interventions in the health sector. As was stated above, capacity and capacity building are never static, and they are multi-dimensional, making both capacity and capacity building difficult to capture. In addition, there are numerous environmental or

contextual factors that influence capacity and performance, yet their effect is not well understood. Finally, since there is little empirical evidence indicating which elements of capacity are critical to health system performance, the choice of indicators to assess elements of capacity remains experimental.

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I. INTRODUCTION

Capacity building has become central to the development of health systems in low-income countries. Experience suggests that achieving better health outcomes requires increased investment of financial resources and adequate local capacity to use those resources effectively. Local capacity is also believed to play a critical role in the sustainability of health outcomes and in reducing reliance on external assistance over the long term. International donors and non-governmental agencies, as well as ministries of health are, therefore, increasingly relying on capacity building to enhance overall performance in the health sector.

Despite increased attention to capacity building, there is still limited understanding of the role capacity plays in ensuring adequate performance in health systems. There are unanswered questions regarding the elements of capacity that are critical to performance and the level of capacity necessary for adequate performance.

Recognizing the need to improve understanding of the relationship between capacity building and development outcomes, in late 1998 the Center for Population Health and Nutrition at USAID (G/PHN) began to examine the role of capacity building in the population and health sector. Discussions emphasized the challenges of assessing capacity and monitoring and evaluating USAID capacity building efforts. While methods for assessing change in service coverage, access and quality are well advanced and widely accepted (Bertrand, Magnani and Rutenberg, 1996), many practitioners have found it considerably more difficult to capture the interim state or process – known as “capacity” - that reflects local ability to achieve and sustain coverage, access, and quality over time. This report begins to address that challenge.

The purpose of this report is to review current knowledge and experiences from ongoing efforts to monitor and evaluate capacity building interventions in the population and health sector. Written for USAID program managers and project designers, the report aims to disseminate the "state-of-the-art" in measuring the effect of capacity building in developing country health systems.

The specific objectives of this report are to:

1. review current approaches to measuring capacity and the effects of capacity building interventions
2. develop a working definition of capacity building
3. develop a conceptual framework for mapping capacity

This activity represents the first step of a larger initiative under the MEASURE Evaluation Project to disseminate “best practices” in the design and assessment of the capacity building interventions that are central to health and development programming. Ultimately, the initiative will produce practical guidelines for measuring the performance of USAID-supported capacity building interventions.

Sections II and III of this document present a definition of capacity building and the conceptual framework for measuring the effects of capacity building in the health sector. Information from a variety of sources was reviewed in order to develop the proposed definition and the conceptual framework. Sources included published literature, unpublished documents describing efforts to measure the effects of capacity building, informal discussions with practitioners in the field, covering both theoretical and practical perspectives, and discussion at a two-day meeting on Measuring Capacity Building in Health and Population Programs, hosted by MEASURE Evaluation in November, 1999. Section IV reviews recent experiences in measuring the effect of capacity building, derived largely from practice-based information; discusses key methodological issues, such as the role of indicators and indices, modes of data collection, and measurement of trends over time; and concludes with a discussion of the challenges inherent in measuring capacity in the health sector and recommended steps for developing feasible and practical approaches to monitoring and evaluating capacity building interventions.

II. REVIEW OF THE STATE OF THE ART

Early efforts by donors to improve health outcomes in developing countries focussed mainly on strengthening service delivery. Common strategies included expanding service provision (access), marketing services to target groups (demand creation), and raising the standard of quality of care. In the past decade, as donor resources have become increasingly scarce, the focus of external investment in health has generally moved away from service expansion at all costs toward finding ways to sustain improvements in local skills and structures that are critical to health system performance (LaFond 1995, Bossert 1990, Brinkerhoff and Goldsmith 1992). This interest in sustainability is reflected in both the statements and practices of current external investment strategies. For example, donor agencies are now more likely to work through local organizations than to implement projects directly. The stated objective is not just to improve health status or individual behavior during the project's lifetime, but to ensure that local entities - organizations, groups, and even health systems - can maintain these improvements over time, independent of external support.

A common approach to ensuring lasting impact on health status is to build local technical, managerial, financial, and political capacity. Capacity building has thus become a “buzz word” among planners and program managers who design interventions, and particularly among professionals interested in the development of public and private sector organizations. Few relationships between local and external partners are formed without some suggestion of a capacity building plan. It is, therefore, surprising that there is still little consensus on approaches to measuring the effectiveness of capacity building interventions. We began to address the question of measurement by looking first at concepts of *capacity* and *capacity building* in the literature. This is followed by a review of how others have defined capacity building, leading to a working definition of capacity building that the authors use throughout the remainder of this report.

The Concepts of Capacity and Capacity Building

Capacity, like sustainability, is an elusive concept. In the literature it is described both as a process and an outcome; as dynamic and multidimensional. For example, in the health sector capacity is required at different levels and within different entities - the health system, organizations, health personnel, and individuals (such as clients). Capacity is said to develop in “stages of readiness” which indicate improvements or decline (Goodman RM, Speers MA, McLeroy K, Fawcett S, Kegler M, Parker E, et al. 1998). In all cases, capacity exists for the purpose of performing a certain action or enabling performance. Goodman [1998] describes capacity as “the ability to carry out stated objectives.” In the health sector, capacity is believed to play a prominent role in securing health system performance.

The concept of *capacity building* is also somewhat intangible. Theoretical discussion, found largely in the published literature, discusses *capacity building* in broad terms and focuses on making the case for building the capacity of organizations and health systems to deliver services in developing countries (Bossert, 1990; Kruse, 1998; Macintyre, 1992; Mogedal, 1997; Paul, 1995; Peters and Chao, 1998). This body of literature presents a wide range of definitions and arguments for why capacity building is important, with limited discussion of how to measure capacity prior to an intervention, or the effect of interventions designed to improve capacity (UNDP, 1998). Although many authors acknowledge the importance of formulating such measures, the published literature suggests that efforts to measure the outcomes of capacity building are at the very early stages of development (INTRAC, 1998; Macintyre, 1992). In contrast, the practice-based information, drawn largely from the gray literature and through discussions with practitioners, elaborates the concept of capacity building by discussing the experience of measuring various elements of capacity and the effects of capacity building interventions (Africa Bureau, 1999; Brechin, Haas and Brown, 1998; Fort, 1999; FPMD, 1992; Kotellos, 1998; Lusthaus, Anderson and Murphy, 1995; MSH, 1997; MEASURE Evaluation, 1998). It is from this experience that many valuable lessons on capacity measurement are drawn.

In general terms, *capacity building* is a process or activity that improves the ability of a person or entity to “carry out stated objectives.” In the health sector, capacity building takes place at all the levels noted above and, in its broadest sense, may characterize the development process as a whole. Notably, most development organizations are currently engaged in some type of capacity building for achieving development goals (Africa Bureau, 1999; Gilboy, 1995; INTRAC, 1995; Taschereau, 1998; UNDP, 1998). More specifically in the health sector, the ultimate goal of “generalized” capacity building is a sustainable local health system (LaFond, 1995). In this sense, any activity, project, or change in environment that improves the ability of a health system to bring about positive health outcomes is considered a capacity building intervention.¹ In practice, however, capacity building is often equated with strengthening the organizations and the people that enable health services to be delivered effectively and continuously through the execution of different functions (policy making, management, clinical care, logistics, networking). The concept of capacity building presented in this paper encompasses this range of views. It allows one to look broadly at the entire health system, while focussing on its specific components, such as different types of organizations within or linked to the system (service delivery, civil society organizations); the skills of managers and staff within organizations; and the role of individuals and community groups that relate to the health services.

Definitions of Capacity Building from the Literature

While capacity building is a familiar term to health and population planners, it means different things to different people. Efforts to define capacity range from a description of an external intervention to a discussion of a process of change. A recent survey of Northern NGOs (NNGOs) from North America, Europe, and the Pacific conducted by INTRAC, found that the definitions of capacity building varied from "very general statements to more specific

¹ There is considerable overlap in the literature between the concepts of capacity and sustainability (Fort, 1999; INTRAC 1998; LaFond, 1995; Lusthaus 1995; Wolff et al., 1991). Sustainability is frequently equated with financial self-reliance rather than encompassing other important aspects such as technical, managerial, system, or organizational capacity. However, in considering the health system as a whole, sustainability can be defined as “the capacity of the health system to function effectively over time with a minimum of external input” (LaFond, 1995). In other words, sustainability can represent the result of capacity building that remains effective over time. Clearly, factors other than capacity building also influence sustainability (e.g., national economy), and many of these factors may even undermine attempts to improve health system or organizational performance over the long term.

descriptions of one or two activities," (INTRAC, 1998). The following are some examples of the definitions given by the NNGOs:

"We define capacity building as any activities which increase our partner's abilities to carry out or assist others to carry out efforts successfully to improve the lives of the poor,"

"providing NGO staff with training to run their program effectively,"

"organizational strengthening (activities to improve the capacity of implementing organizations) and institutional development (activities to strengthen the position of organizations in their society)" (INTRAC, 1998).

JHPIEGO, a project that focuses on the clinical training of health personnel, defines capacity building as "bringing together the educational and health systems of a country to prepare a cadre of health-care providers who can deliver standardized, high-quality services" (JHPIEGO, 1997).

The literature reveals several key characteristics of capacity building in the health sector. According to Lusthaus et. al., (1995), capacity building is a **continual process of improvement** within an individual, organization, or institution with the objective of maintaining or improving the health services being provided. It is essentially an **internal process**, which may be enhanced or accelerated when an outside group/entity (e.g., donors or their cooperating agencies) assists the individual, organization, or institution to improve its functions or abilities, especially in terms of specific skills (Taschereau, 1998). While internal capacity building is **ongoing**, in that learning can occur through a wide variety of planned and unplanned experiences and activities (e.g., networking, training, and creative responses to new challenges), external assistance (to build capacity) generally occurs through more discrete and planned interventions. These interventions often focus on achieving specific improvements in a particular context in a particular time period. Examples include the improvement of supervisory skills or the development of a financial management system. External assistance to build capacity thus comes in a variety of forms, including but not limited to technical assistance, training courses, and financial packages (Kotellos, 1998; Lusthaus, et al., 1995).

Capacity building is also **multidimensional**. Broadly defined it is an abstract concept (Fort, 1999). Thus, to make it easier to grasp, many have described it in terms of its components,

strategies, dimensions, or interventions. Health program managers widely agree, in published literature and in discussions with practitioners², that there are three important and linked levels of capacity in the health sector: system, organizational, and human resource or health program personnel (Brechin, 1998; Fort, 1999; Kotellos, 1998; Lusthaus et al., 1995; Partnerships for Health Reform, 1997; Paul, 1995). Below we have introduced a fourth level: the individual/community. Discussion of community capacity is reflected mainly in literature that focuses on domestic US-based communities (Goodman et al, 1998). Community capacity is also discussed in the international public health literature (though it is not defined as such) related to community development, mobilization, and empowerment (Rietbergen-MacCraken, 1996, UNAIDS, 1997, Stein, 1997). In practice, most capacity building interventions focus on the organizational or human resources/personnel level and the literature and measurement experience is dominated by experience in these areas. The health system is a relatively new dimension for capacity building and capacity building measurement as is the individual/community level. The four levels of capacity in the health sector are presented below.

Health System Level³

Health system refers to "the totality of the health care system in a country - - that is, preventive, curative, and/or public health services; the public and private sectors; primary, secondary and tertiary care" (Berman and Walsh, 1993; Cassels, 1995a; Cassels, 1995b; Partnership for Health Reform, 1997). It includes the resources, actors, and institutions related to the financing, regulation, and provision of health actions (Murray and Frenk, 1999; WHO 2000).⁴ The system is therefore seen as a collection of institutions or organizations, and the health personnel in those organizations working together to deliver health care and/or promote better health.

The authors, however, believe that the health system performs certain functions independent of those performed by the institutions, organizations, and personnel within it, and therefore, propose

² A group of capacity building practitioners met at the Global Health Council meeting in Washington, DC on June 22, 1999. The notes from this meeting are available from the authors.

³ Some have labeled this level institutional development (Kotellos, 1998; INTRAC, 1998), while others use the terms organization and institution interchangeably. To avoid confusion, we have adopted the term system.

⁴ A health action is defined as "any set of activities whose primary intent is to improve or maintain health," [Murray and Frenk, 1999].

that the health system possesses its own capacity that can be assessed over time and targeted for intervention. *System capacities* relevant to health outcomes generally include design of the overall structure and policies that guide health care delivery; the coordination of different types of organizations (public and private), their managers, providers, and staff; and the allocation, management, and regulation of health system resources.

Health system capacity is clearly a complex notion. It is influenced by the component parts of the health system (organizations, personnel, individuals, and communities), and also contributes to the capacity and performance of these same entities. Moreover, there is currently no agreement on a standard set of functions that every health system should perform. In a recent paper on health system performance assessment, The World Health Organization proposed four main health system functions that influence overall performance -- financing (revenue collection; fund pooling, and purchasing); provision of services (personal and non-personal); resource generation; and stewardship (WHO, 2000).⁵

Organizational Level

This dimension focuses on the structures, processes, and management systems that enable specific health-related organizations to function smoothly and adapt to changing circumstances. It includes the human, physical, and knowledge resources of an organization and the processes employed to transform these resources into services or products. Capacities relevant to *organizational performance* include, *inter alia*, strategic planning, financial management, information management, logistics systems (for contraceptives or medicines), communication networks, or human resource development and management.

⁵ "The notion of stewardship goes beyond regulation to include: the setting, implementing and monitoring the rules of the game for the health system; assuring a level playing field among all actors in the system and defining strategic directions for the health system as a whole" [Murray and Frenk, 1999].

Human Resource (Health Program Personnel) Level⁶

This dimension encompasses the collective body of individuals who work in the health system in a variety of technical, managerial and support areas. Human resource capacities relevant to health system performance and health and population outcomes may include clinical judgement and techniques, diagnosis, treatment, sterilization or sanitation practices; management practices, such as written record-keeping and supervision; or money management, problem solving, or communications skills. Capacity building of health personnel takes place in different organizations or institutions, demonstrating a strong link between these two levels.

Individual or Community Level

Another dimension of capacity that is key to building a sustainable health system is the individual (or beneficiary) of the health services (Africa Bureau, 1998; Fort, 1999). As Fort (1999) notes, "Any training system that wants to build capacity requires close contact with its surrounding community." The participation of individuals in health care can take many forms at the health system, organizational, or health personnel level. For example, individuals can help increase the quality of services by giving health personnel important information about their previous health problems or demanding higher quality of care. Increasingly, individuals either alone or as part of their community, are playing an important role in shaping the system through participation in health center management committees, lobbying decision-makers and using the media or other forms of advocacy to demand that the system respond to their needs. Finally, individuals and their communities also influence health outcomes and the need for health care through their own behavior (Goodman, et al, 1998). Early recognition of illness, self-treatment, and healthy living are paramount to individual health outcomes.

⁶ Throughout the remainder of this report, human resource capacity will be referred to as health program personnel.

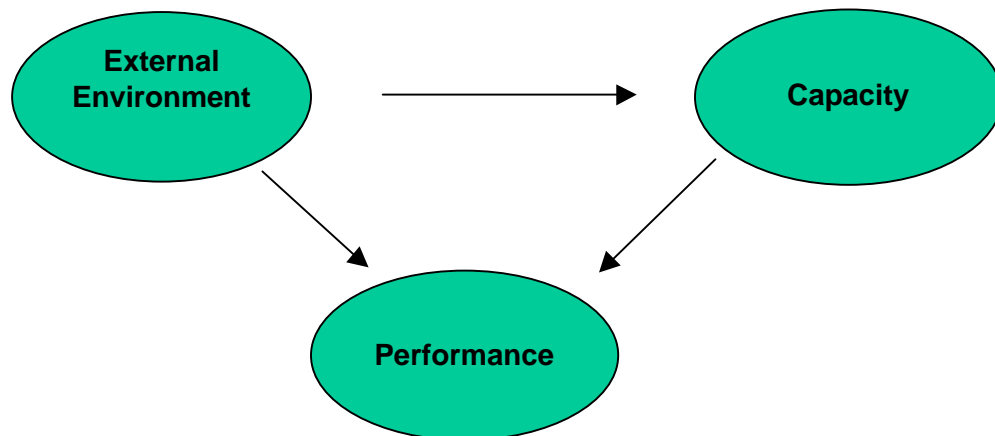
Capacity and Performance

Common to all characterizations of capacity building is the assumption that capacity is linked to performance. A need for capacity building is often identified when performance is inadequate or falters. Moreover, capacity building is only perceived as effective if it contributes to better performance. In seeking to improve understanding of the measurement of capacity (and the effects of capacity building interventions), however, linking of capacity and performance presents three challenges:

- There is a lack of common understanding of the nature of the relationship between capacity and performance. For example, little is known about what elements or combinations of elements of capacity are critical to performance.
- There is considerable variation in what constitutes “adequate” performance. For example, in the literature there are numerous examples of how to improve organizational capacity, but very little discussion of what level of organizational performance is expected from improvements in capacity. In many instances, identification of “essential capacity elements” will depend on the nature and focus of performance goals, as well as the stage of development of the entity being assessed (system, organization, health personnel, etc.).
- Capacity, like capacity building, is not only dynamic, ongoing, and multidimensional, it is also directly and indirectly influenced by contextual factors (or elements of the external environment). Therefore, the maximum level of capacity (and performance) that can be attained in any one entity may vary in different contexts. Measurement of performance improvement in the context of a resource poor health system is, then, particularly problematic.

Diagram 1 depicts the relationship between environment, capacity, and performance that must be considered when approaching the measurement of capacity.

Diagram 1: Factors of Performance



Working Definition of Capacity Building

If capacity is defined as “the ability to carry out stated objectives,” then capacity building is *a process that improves the ability of a person, group, organization, or system to meet its objectives or to perform better*. Capacity building interventions, therefore, work to improve the processes that go on within the health system as a whole (improvement in function); the organizations within the health system (improvement in function); health personnel (improvement in ability to perform work functions); and individuals (improvement in ability to engage productively with the health system through access to services and influencing resource management, and improving their own health).

Capacity building in the health and population sector has the following five characteristics.

Capacity building:

- Is a multi-dimensional, dynamic process
- Can be conducted and measured on four levels of society – health system, organization, health personnel and individual/community
- Should lead to an improvement in performance at each of these levels
- Contributes to the sustainability of the health system
- Is influenced by the external environment

There are two important distinctions between this definition of capacity building and others.

- This definition adds the individual and his/her community. This level is essential to the overall discussion of capacity building. For example, capacity is clearly needed in the areas of consumer and health awareness given their potential role in influencing demand for services, the nature of services, and individual, family, and community health status.
- Emphasis is placed on the interaction between different levels in the health system and its relationship to capacity and capacity improvement.

III. CONCEPTUAL FRAMEWORK

Introduction

With the above definition in mind, we present in this section a conceptual framework for mapping capacity in the health sector. We suggest mapping because of the limited amount of empirical evidence of the link between capacity and performance in the health system. The process of mapping makes explicit the assumptions underlying this relationship, and provides a framework for testing those assumptions. It is a first step toward greater understanding of appropriate measures of capacity and the development of empirical tools to examine these links.

Based on the literature review, discussions with field practitioners and documented experiences in measuring capacity, we depict in Figure 1 an overall conceptualization of the role of capacity in health system performance. The diagram depicts the four levels where capacity is needed to ensure overall health system performance: the health system, organization, health personnel, and individual/community. These four levels of capacity are further detailed in the following four frameworks (Figures 2-5). The purpose of these frameworks is to breakdown capacity at each level into inputs, processes, outputs, and outcomes (i.e., the inputs (resources) and process (functions) required to produce capacity-related outputs, and outcomes) to understand its possible composition (see table 1 for definitions). Each diagram contains illustrative components of capacity that are believed to contribute to performance at that level. Many of these elements of capacity also contribute to capacity and performance at other levels. It is important to note that these illustrative elements depict a potential map of capacity that represents the current status of capacity (in a system or organization) independent of or prior to any specific capacity-building intervention. As such, these frameworks could provide a starting point for determining critical gaps in capacity at the design phase of a project or activity, and for choosing appropriate capacity building interventions to fill these gaps. They could then be used to guide planners in developing a strategy for monitoring and evaluating the effect of capacity building interventions (defining appropriate indicators, selecting data gathering tools, and a viable timeframe for assessing progress).

While it is useful to separate the levels of capacity for measurement purposes, they are clearly interdependent (as shown by the overlapping ovals and the arrows connecting individuals/communities to the health system and its parts). A health system is made up of organizations and health personnel, and organizations cannot function without health personnel. Without individual users of health services and information the other levels cannot begin to perform effectively. Understanding the dynamics of capacity building at each level and between levels will guide the development of measurement strategies and techniques.

Figure 1. Overview Conceptual Framework

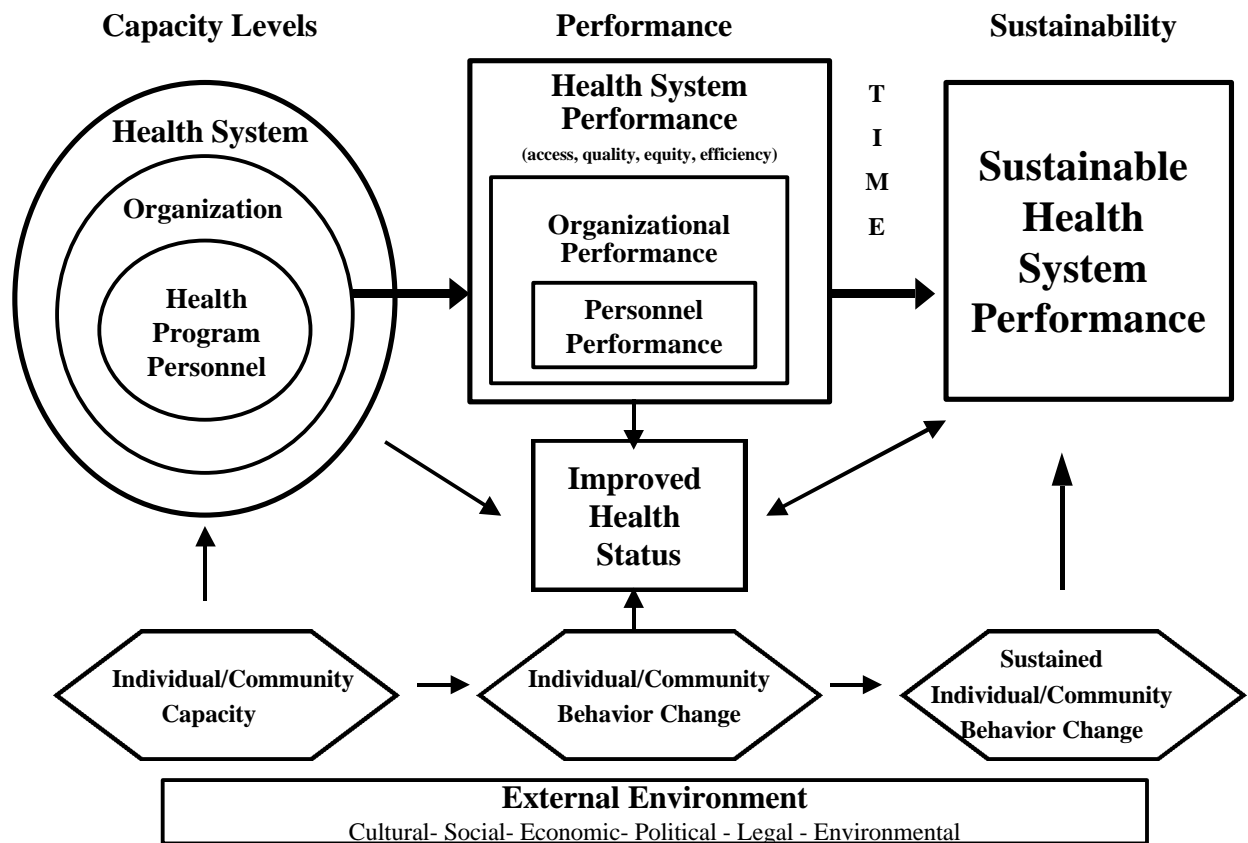


Figure 2: Health System Capacity

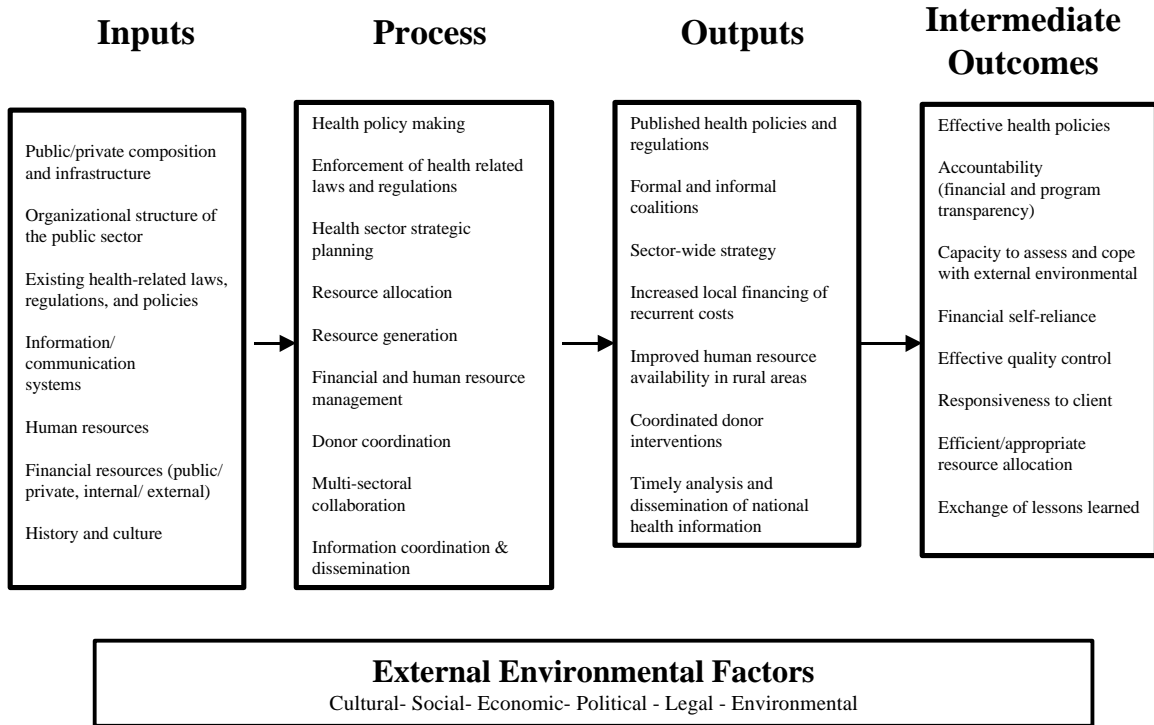


Figure 3: Health Service and Civil Society Organizations

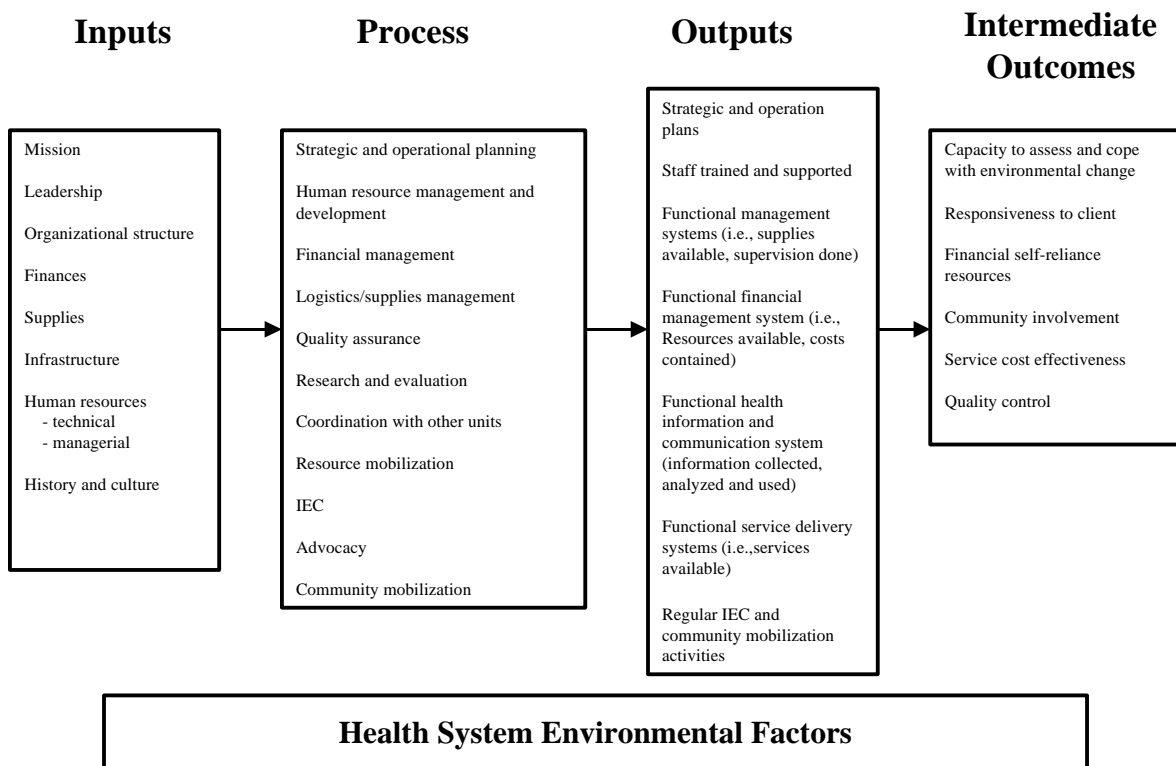


Figure 4: Health Program Personnel

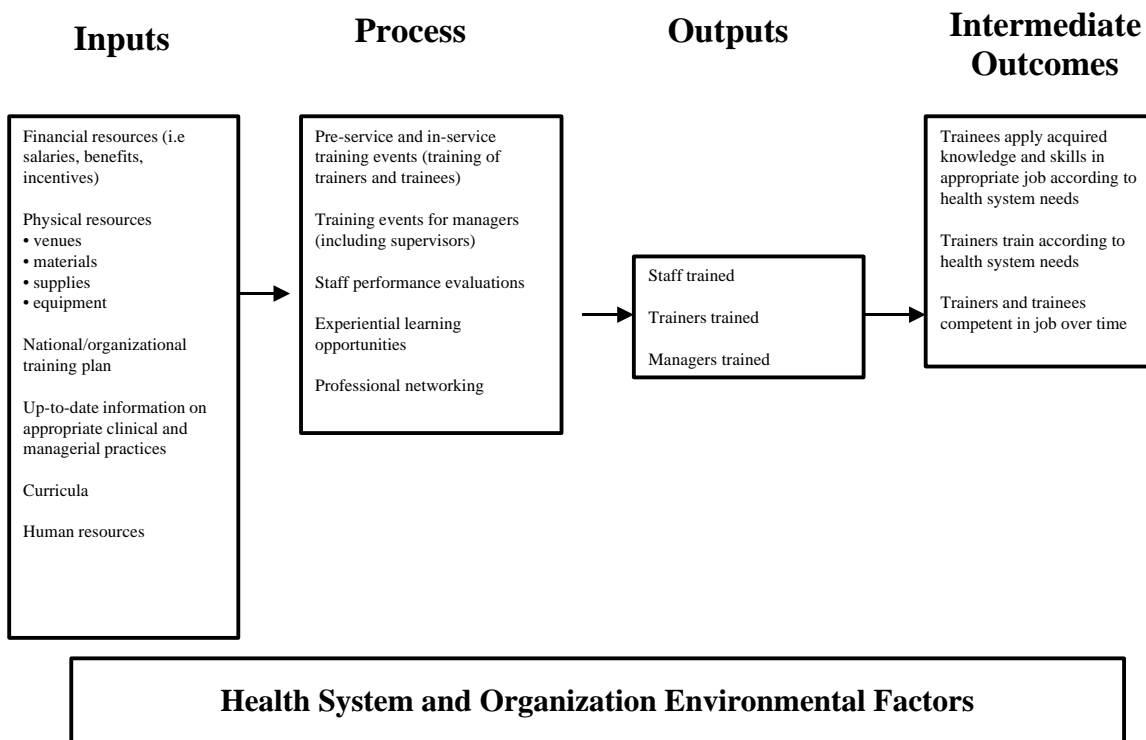
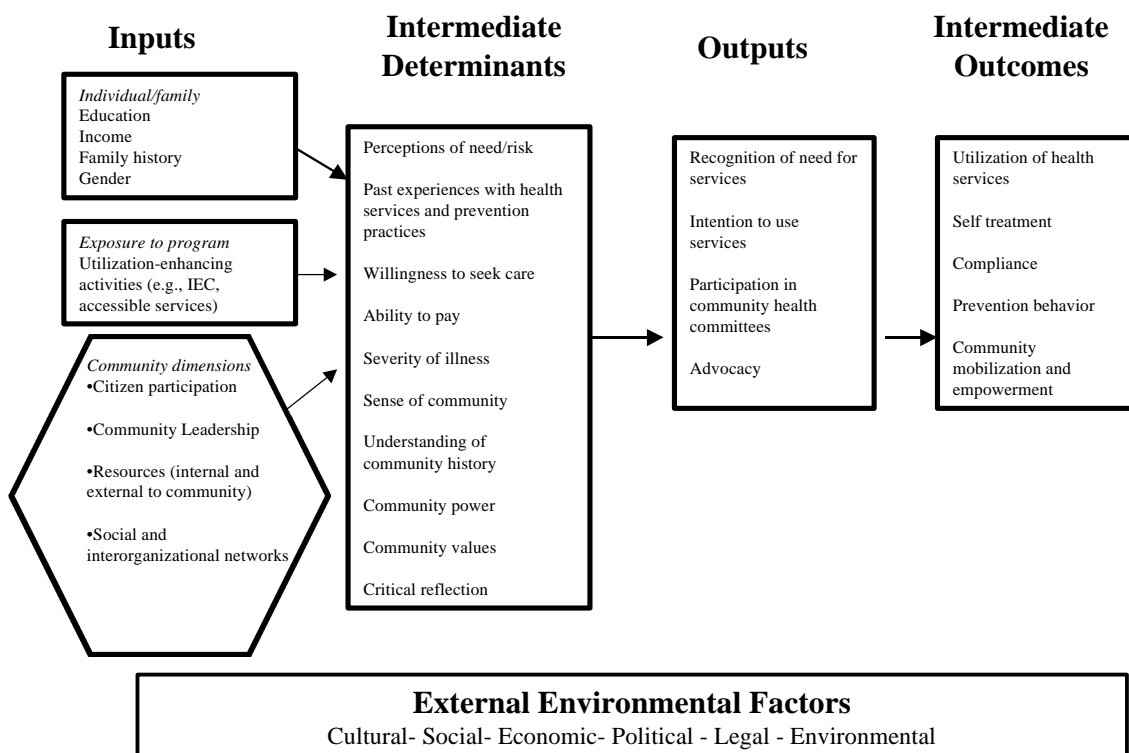


Figure 5: Individual/Community Capacity



Overall Framework for Mapping Capacity

The framework for mapping capacity in the health sector uses the following definitions of terms.

Table 1: Levels of Assessment

Capacity Component	Component Definition
Input	Set of resources, including service personnel, financial resources, space, policy orientation, program service recipients that are the raw materials required to perform functions at each capacity level (system, organization, health personnel, and individual/community)
Process	Set of activities or functions by which the resources are utilized in pursuit of the expected results
Output	Set of products anticipated through the execution of the functions or activities using the inputs
Intermediate Outcomes (or performance at the organizational, health personnel and individual/community levels)	Set of short-term results expected to occur as a direct result of the capacity built at all four levels (system, organization, health personnel, and individual). The four levels together contribute to overall performance at system level.
Ultimate Outcomes (Impacts)	Long-term results achieved through the improved performance of the health system: sustainable health system and improved health status

Figure 1 presents an overview of the relationships between the four levels of capacity and their link to maintaining or improving the performance of any or all aspects of health care provision and health-seeking behavior in that society. As noted above, performance is interpreted by many in the field of international development as the key outcome of capacity building (Kotellos, 1998; USAID, 1998). In this framework overall health system performance is influenced by the capacity of its internal components as well as the external environment. We have defined health system performance in terms of access to services, quality of care, equity, and efficiency, although there are no doubt other relevant performance measures. Access, quality, and efficiency are accepted markers of health system performance, despite the tensions inherent in trying to reach them all simultaneously (Murray and Frenk, 1999; WHO, 2000; Aday, Begley,

Lairson, and Slater, 1998). Equity is a performance variable that reflects the ability of the health system to provide health care to all those who need it, particularly the poor.

Many of the system level performance variables are also considered performance variables at the organizational level. We note that at the system level the magnitude of these outcomes is greater, since they represent the contribution of all four levels of capacity to the system as a whole (overall quality rather than quality of care provided by a single organization). For example, a service provision organization aims to meet the needs of its target population, whereas the health system aims to meet the needs of the country.

It is posited that stable or increased performance of the health system over time in turn leads to the establishment of a *sustainable* health system, that is a system which is capable of providing continuous and effective services to all segments of the population. Ultimately a sustainable health system should lead to improved health status at the population level. However, health status could also be improved by a “well - performing” health system that is not yet sustainable. Whether the health system is sustainable or not, it's effect on health status of the population is through the individual/community. In this framework, the individual/community contributes to health system capacity by interacting with the providers and organizations (receiving care, determining priorities, or providing resources) while simultaneously contributing to health system performance by using health services. In addition, individuals and communities can improve their health status independently of the health system by promoting and adopting preventive measures, such as not smoking, practicing regular hand washing, or eating well. Improvements in individual and community capacity should result in sustained behavior change over time, representing this level's contribution to overall health system sustainability.

The narrow box along the base of the diagram illustrates the influence of environmental or contextual factors, including cultural, social, economic, political, legal and environmental variables that influence capacity and performance at all four levels [Africa Bureau, 1999]. The influence of these factors may be crucial to the success of capacity building, yet they are difficult to control or change. Contextual factors that may be particularly important in influencing the capacity of the health system include burden of disease, climate, topography, political systems,

economic stability, relative freedom of the press, colonial history, and ethnic composition, as well as more specific factors in any given country. While recognizing the importance of these factors, we have chosen to focus on those variables open to influence through health sector interventions by donors, governments, private agencies, and individuals through an explicit and dynamic approach to capacity building.

Figures 2-5 present in detail elements of capacity for each level. Each one uses the “inputs-process-outputs-outcome” model to disaggregate different factors of capacity and the potential relationships between these factors within a single level. Understanding the constituent elements of capacity at each level will be critical when identifying capacity “gaps,” determining the scope and focus of a capacity building intervention, and defining a monitoring and evaluation plan. The inputs represent the resources (human, financial, and material) that are required for producing capacity-related outputs and outcomes. Processes represent the functions at each capacity level that transform resources (inputs) into capacity outputs and outcomes. The intermediate outcomes at the organizational, health personnel and individual/community level represent elements of capacity for that level. They are described as intermediate outcomes because they collectively contribute to the overall health system performance shown in the center of Figure 1.

The System Level

With respect to the illustrative variables in the system level framework (Figure 2), on the input side are the amount and shape of human and financial resources, the infrastructure, and the information and communication structures that may enable or hinder the process of delivering effective health care. The history and culture of a health system are also predetermined inputs that motivate the system and influence capacity outcomes (Personal communication, Fred Carden, IDRC, 2000). The factors listed under "process" at the system level include functions such as policy making; enforcement of health related laws and regulations; strategic planning; financial oversight; donor coordination; multi-sectoral collaboration; and information coordination and dissemination. While these all-important processes are specific to the system level, in practice they are often functions carried out by the Ministry of Health (MOH) with support from donors and in collaboration with other actors in the health sector (e.g., NGOs,

private companies, etc.) Here there is a clear overlap with organizational capacity since the capacity of the system to carry out certain functions may depend directly on the capacity of the MOH to play its organizational role effectively.

Examples of system level outputs might include published health policies and regulations, formal and informal coalitions, donor coordination meetings, sector-wide strategies, and the publication of a national statistics yearbook. These outputs are the immediate result of processes such as policy making, donor coordination, strategic planning, and information coordination. The intermediate outcomes that represent capacity of the health system include effective health policies, accountability, responsiveness to individuals and to changes in the external environment, rational allocation of resources between primary, secondary and tertiary care, and effective learning from experience by health system actors. These factors are often the result of a combination of the inputs, processes, and outputs listed in the previous boxes. Effective health policies may reflect how well the laws and regulations are funded, designed, and implemented. Accountability refers to both the financial and programmatic transparency of the health system to donors as well as internal units of the health system. For example, the submission of timely financial and programmatic reports to donors and senior managers is one potential indicator of accountability. Another outcome of importance at the system level - the ability of the health system to cope with external changes or pressures - relates to ability to withstand or address crises ranging from short-term resource shortfalls to complex emergencies (e.g., natural disasters or civil conflict). Capacity in this area depends on financial, human and information resources, as well as the flexibility of planning and strategic functions. Responsiveness to its client base is an equally critical system level outcome to ensure demand for services. Capacity building interventions at this level might aim to improve resource availability (inputs) or resource management (planning and budgeting). The effectiveness of these system-level capacity-building interventions could be monitored using input, process, output, and outcome indicators, as deemed appropriate.

The system level is a complex area in which to define or address capacity development, or to assess changes in capacity resulting from external or internal intervention. Relationships between input, process, output and outcome variables are not perfectly linear. In addition, a

single capacity outcome at the system level frequently depends on a variety of inputs and processes. Finally, contextual factors such as political stability and national economic capacity play a dominant yet poorly understood role. Preliminary research by WHO (Murray and Frenk, 1999; WHO, 2000) on defining the system functions that relate to performance outcomes indicates the difficulty of deconstructing the role of the health system into separate and distinct tasks or purposes.

Organization Level

Figure 3 depicts the inputs, processes, outputs and intermediate outcomes at the organization level that are hypothesized to contribute to the capacity of organizations to perform effectively (in the production of goods and service) on a sustainable basis. Much of this framework will be recognizable to those who have worked in organizational development or management training in the past 30 years.

The typology of organizations reflected in this framework includes health service organizations (governmental, private for-profit, or not-for-profit) and civil society organizations (non-governmental or non-health service agencies). The latter are generally not involved in the direct delivery of health services, but have an important impact on health services, policies, and behaviors in many societies and cultures throughout the world. Civil society organizations of particular importance could be cooperatives, community development organizations, advocacy groups, informal pressure groups, as well as others. The MOH is a unique organization for conceptualizing capacity building measurement since it can be a significant actor at both the system and the organizational levels. The most immediate contextual factors influencing organizational capacity are represented as the system level environment in the box located below the main diagram.

Standard inputs or resources at the organizational level include financial resources, supplies and equipment, leadership as a specific category of human resources, and then all the other types of human resources that are required to build or maintain capacity in any organization. History and culture are also considered inputs that influence capacity. The process variables include many of

the elements that are necessary for an organization to function effectively over time: planning, resources mobilization, etc. The outputs that represent organizational capacity are the direct result of organizational processes. The intermediate outcomes include the capacity to cope with change, financial self-reliance, client responsiveness, quality control, and cost effectiveness of service delivery. Similar to the system level, capacity outcomes at the organizational level depend on many inputs and processes. Table 2 below provides an example of the many variables that contribute to a single organizational capacity outcome: financial self-reliance.

Table 2: Mapping Organizational Capacity
Key Outcome: financial self-reliance

Inputs	Process	Outputs	Intermediate Outcomes
<ul style="list-style-type: none"> • Leadership • Finances • Infrastructure • Human resources • <i>Financial policy context</i> • <i>Organizational culture context</i> 	<ul style="list-style-type: none"> • Strategic & operational planning • Financial management • Research & monitoring & evaluation • Coordination w/other internal units • Resource mobilization • <i>Creation/maintenance of linkages (external)</i> • Advocacy • Quality assurance • Community mobilization • Human resource management & development 	<ul style="list-style-type: none"> • Staff trained • Financial management system established • External linkages established (to donors, partners, individuals, community) • Strategic & operational plans developed 	<ul style="list-style-type: none"> • Financial self-reliance (ability to generate resources & healthy funding basis)

Health Program Personnel Level

Figure 4 presents the health program personnel level. The term health personnel refers to all those who perform clinical, managerial, or advocacy work within the health system. For health personnel to perform effectively and contribute to organizational and system performance, there must be sufficient funds (i.e., for training and remuneration), physical space and materials for basic professional education and to conduct training events, and adequate human capital to be trained. In addition, basic and subsequent training should be guided by a national or organizational training plan using up-to-date curricula. These inputs are transformed into capacity outputs and outcomes through processes such as educational and training events for trainers, trainees, and managers, and other opportunities for improving or maintaining health personnel capacity such as study visits, and peer review. The outputs of these events are trained personnel in all categories. The intermediate outcome is the application of training knowledge and skills by health staff working in appropriate positions over time. Competent health personnel will then provide better quality services and, in turn, improve organizational and health system performance.

There are many organizational and system level factors that influence the capacity and performance of health providers as represented in the external environment box located below the main diagram. For example, the health professional must be personally motivated to perform his/her job effectively. Motivation often depends on the presence of an adequate working environment, including reliable equipment and materials and support staff. Financial compensation and supportive supervisors also influence the performance of health personnel.

In contrast to the system and organizational levels, comprehensive interventions to build and maintain capacity are more common at the health personnel level. Ideally, in each health system there should exist a plan for producing and maintaining qualified personnel (personnel with capacity) and providing them with an adequate environment in which to perform effectively. It is less common to find comprehensive organizational and system level capacity building plans, although one could argue they are equally important.

Individual/Community Level

The final figure, Figure 5, represents the "demand-side" of the equation for capacity building as well as the role of individuals and communities in shaping health systems and improving health status. In addition to system, organization, and health personnel levels, capacity is required within individual clients and communities to ensure demand for appropriate services, promote their role in contributing to or influencing service delivery, and to encourage the practice of certain behaviors that are conducive to good health. For example, the capacity of the clients to demand improved or new services or to engage with health care personnel and organizations is vital to health system sustainability and achieving adequate health status of the population.

Here the individual/community level represents all those who could benefit from and participate in the health care system; thus it includes all current and potential customers of the services offered and the communities in which they live. The inputs in this model represent the fundamental resources available to individuals and communities. They are divided into individual/family factors; community factors, and factors outside the immediate influence of the community, such as exposure to health and education programs. The individual/family factors include education level, income, knowledge (e.g., from family and neighbors), and family history. Other variables at this level relate to community cohesiveness or economic capacity. IEC programs are the primary external exposure that could influence individual and community behavior.

For Figure 5, "process" did not capture adequately the way in which individual and community inputs are transformed into outputs. Therefore, we adopted the category "intermediate determinants" to represent other individual and community factors that influence capacity. These variables include perceptions of need, ability to pay, past experiences with the health system, and biological determinants, such as severity of illness or disease for individuals. Community related intermediate determinants might include community values, power relations, and experience with the health services. Outputs include intention to use services or behave in ways that promote good health, as well as actual behavior on the part of individuals or communities that attempts to influence resource allocation in the health sector (participation or

advocacy). Finally, individual/community level capacity outcomes include behavior such as utilization of health services (for prevention or curative care), self-treatment or home treatment, and compliance, as well as characteristics such as community empowerment, and actions such as community mobilization.

IV. MEASURING CAPACITY

The following section discusses several aspects of measuring capacity based on the conceptual framework presented above. Specifically, this section reviews:

1. existing and potential capacity indicators (mapped to the conceptual framework)
2. efforts to develop capacity indices
3. existing tools to measure capacity indicators, and
4. methodological challenges in measuring capacity.

1. Indicators

The review of existing indicators for measuring the effects of capacity building in health and population programs identified a wide range of indicators at each level of capacity (health system, organizational, health personnel, and individual/community). Table 3 presents some illustrative indicators by level of capacity (as presented in the conceptual framework) and measurement stage (input, process, output, and outcome). The table suggests the enormous variation in indicators currently used to measure capacity and how these indicators might be used to measure different elements of capacity. All the indicators were gathered from references cited in the text or, in the case of the individual Cooperating Agencies and country missions, were taken from the MEASURE Evaluation database (see Appendix A for a description of the database). The table is not constructed to represent the relationship between different indicators since most of these relationships are complex and multidimensional.

The indicators illustrate some of the current approaches to measuring capacity. As expected, many of the indicators identified through this review focus on organizational and health personnel capacity, since the majority of capacity building activities have occurred at these two levels. Many of the indicators were developed by USAID CAs involved in capacity building in health organizations and training health personnel, such as JHPIEGO, INTRAH, JSI, and MSH. Health system level indicators were drawn from a Handbook prepared by the Partnerships for Health Reform Project (Partnerships for Health Reform, 1997). Individual and community level indicators were drawn from existing indicators of individual health behavior. No indicators to measure the linkages between the different levels were identified. In addition, many of these indicators were developed for specific projects or programs and thus may not be applicable across different settings. Clearly, additional consideration is needed with respect to indicator standardization, given the variety of settings and entities in which capacity building occurs.

All these indicators could be used to assess capacity at specific point in time or to measure the effects of capacity building interventions at any level and any stage of program development. For example, improving the human resource management of an organization could be the focus of a capacity building intervention. The process indicator “job descriptions regularly updated to reflect real work requirements and responsibilities” could then be used to look at the effect of this intervention over a specific time period.

2. Indices

Indices are complex indicators that combine multiple pieces of information or indicators into a single figure for simpler presentation. To date, complex concepts such as "sustainability" and "capacity building" have not been measured well using indices, with a few exceptions at the health system level and the organizational level.

Health System Level

In the population sector, the Lapham/Mauldin/Ross Family Planning Effort Score or FPE (Ross and Mauldin, 1996) is comprised of 30 items, some of which could be included in a health system capacity index since they include the aggregate assets of organizational level outputs and outcomes. For example, the FPE items include assessment of public-private agency involvement, multiple ministerial involvement, local budget resources, administrative structure, training, personnel, supervision, and monitoring and evaluation. Similar indices are currently being developed for HIV/AIDS and maternal health programs.

Knight and Tsui (1997) have developed and tested a Program Sustainability Index (PSI) and an Outcome Sustainability Index (OSI) for population programs. Both indices use some of the capacity-related FPE items to assess the sustainability of contraceptive access and fertility decline. Given that sustainability could be defined as effective capacity building over time, the FPE, PSI and OSI are among the available quantitative means for assessing capacity building cross-nationally in population programs.

Organizational Level

At least one recent attempt to measure organizational capacity building uses a single index (Fort, 1999). Fort and colleagues at INTRAH have created an index for capacity building in organizations that conduct training in reproductive health service delivery. They compute the index after careful estimation of indicators for 13 components (see Appendix B, part 3 for further details of this index), some of which use more than one indicator for measurement. They are still testing this index using data from 20 countries where INTRAH has implemented programs. If measured over time, the INTRAH Capacity Building Index could be used to assess whether capacity is being built and sustained within a particular training organization.

Table 3: Illustrative indicators of Capacity Building

Capacity Building Level	Inputs	Process	Outputs	Intermediate Outcomes
Health system	<ul style="list-style-type: none"> Population per doctor Ratio of health care spending on primary health care versus tertiary care % of health budget funded by external sources 	<ul style="list-style-type: none"> Donor coordination committee meets every 6 months Collaborative “arrangements” exist between social sectors – e.g. meetings between health and agriculture or health and education 	<ul style="list-style-type: none"> No. of multi-sectoral meetings held No. of collaborative projects initiated sectors outside health Existence of national standards for professional qualifications Existence of sector wide strategy developed 	<ul style="list-style-type: none"> Widely distributed sector-wide strategy Regular auditing of system-wide accounts by independent company
Organization	<ul style="list-style-type: none"> Existence of clear mission statement Presence of operational planning system Presence of detailed job descriptions Clearly defined organizational structure 	<ul style="list-style-type: none"> Coordination with other organizations evident through internal reporting mechanisms Job descriptions are regularly updated to reflect real work requirements and responsibilities 	<ul style="list-style-type: none"> Presence of a financial management system that regularly provides income/revenue data and cash flow analysis Capacity to track commodities Individual work plans are prepared for all staff A sufficient no. sites functioning as clinical training sites to meet clinic practice needs 	<ul style="list-style-type: none"> Realized operational targets Ability to adjust services in response to evaluation results or emergencies Reports generated on time Cost-sharing revenue as a proportion of the annual MOH non-wage recurrent budget % of trained health workers that correctly diagnose two to four months after training
Health Personnel	<ul style="list-style-type: none"> Adequacy of the training materials/supplies has been assessed in one or more institutions Adequate training supplies available in sufficient quantities to support ongoing RH/FP training in one/more institutions 	<ul style="list-style-type: none"> No. of training session to improve human resource capacity which focus on needs identified by the service providing institution % of courses where training methodology is appropriate for transfer of skills/knowledge 	<ul style="list-style-type: none"> No. of providers trained, by type of training and cadre of provider No. of staff trained in finance, MIS, strategic planning, financial planning Number of managers trained, by type of training 	<ul style="list-style-type: none"> % of trainees (providers) competent in skill (i.e. meet standard when applying skill learned in training) Percentage of trainees who apply the skills (learned through training) to their subsequent work
Individual/Community	<ul style="list-style-type: none"> Average level of education (number of years) attained in the district Mean income level Proportion whose partner recently died in central hospital Existence of community leadership 	<ul style="list-style-type: none"> Percent who think they are at risk of contracting serious illness Percent who report previous poor experience of the health care system Level of community cohesiveness 	<ul style="list-style-type: none"> Proportion of non-users who desire to use contraception in the future Level of participation in community health committees 	<ul style="list-style-type: none"> Percent of new mothers who bring their children for immunization at the right time Proportion of individuals who adhere to appropriate/given drug regimen. Level of community mobilization and empowerment

A second example of an organizational level index is the Management and Organizational Sustainability Tool (MOST) developed by FPMD/MSH (MSH, 1996). This index includes 12 essential management components divided into 4 elements: Mission (knowledge and application), Strategic plan (marketing and links to mission), Structure of organization (allocation of responsibility, delegation of authority) and Systems (collection and use of information, source of funds, financial management) (see Appendix B, part 4).

It is important to note that indices can be difficult to interpret if presented out of context or to an audience that does not understand how the index is constructed. The users of any index should be familiar with the components of the index as well as how they are combined.

3. Measurement Methods

This section reviews data collection instruments and tools that have been used to measure capacity at the four levels: health system, organization, health program personnel, and individual/community. Measurement methods (quantitative and qualitative) and type of assessment (self-assessment vs. external assessment) are also considered.

A review of existing tools found that most are designed to assess organizational capacities (see Appendix C for a list of tools and their key characteristics), just as many of the indicators reviewed in the previous section measure this level. However, many of these organizational assessment tools also include some measures to assess the capacities of health program personnel because of their central role in organizational functions and performance. We were only able to identify one tool for measuring the capacity of health systems, although several agencies are in the process of developing measures to assess changes at the system level resulting from health sector reform (Partnership for Health Reform, 1997, Murray and Frenk, 1999).

Most of the tools reviewed (10 out of 16) include several data collection instruments for developing a comprehensive picture of capacity or to assess capacity from different perspectives (e.g., assessing the views of managers and health workers; or assessing internal perspectives and those of external examiners). The remaining tools only use a single instrument. Half of the tools

identified (8 out of 16) used a combination of qualitative and quantitative methods. Of the remaining 8 tools, 7 used only quantitative methods, while only one tool employed qualitative methods exclusively.

More than half the tools (9 out of 16) are applied through self-assessment techniques, four employ external assessment, while three of the tools use a combination of self and external assessment. There are advantages and disadvantages in both self-assessment and external assessment. Self-assessment tools have greater involvement of those whose capacities are being assessed (e.g., staff of an organization), which can lead to greater ownership of the results and ultimately greater likelihood that capacity improvements (based on results of the assessment) will take place. Self-assessment is also a non-threatening way to raise the awareness of the importance of capacity improvement among those involved in the assessment process.

Nevertheless, many self-assessment techniques do require an external facilitator. For example, the DOSA tool, developed by PACT/EDC, involves the self-assessment of an organization's capacity through an intensive process of focus group facilitation and administration of an individual questionnaire.

Some self-assessment tools (e.g., COPE) are designed to be taken over by the local staff of the organization after initial assessments are conducted with a facilitator. Self-assessment tools generally rely on perceptions and thus may be less effective tools used alone or repeatedly. Stronger approaches use a mixture of methods that combines subjective and objective measurement.

In contrast, external-assessments are often considered more objective. Although, this varies based on whether the assessment focuses on perceived or subjective assessment or a more objective measures of capacity. It is unclear whether one approach is more costly than the other. While external assessments are often considered more expensive due to the cost of external consultants, self-assessments, particularly those that require intensive facilitation, can also be demanding in terms of time and financial resources.

The organizational capacity tools reviewed, generally, assess the capacity of an organization in various areas (e.g., management, financial management, and technical). For example, MSH's Organizational Profile is a tool that gathers general information about an organization's history, structure, services provided, among other issues. Normally, a knowledgeable person from the organization being assessed is asked to fill out a form providing information about the organization. Sometimes the information from an organizational profile is verified through a document review.

Monitoring and Evaluation

Very few of these capacity assessment tools were developed or have been used strictly for monitoring and evaluation purposes. Most commonly, the tools are used to assess the capacity of a system, organization, or personnel at a particular point in time. The tools developed by the SFPS (Family Health and AIDS in West and Central Africa) Project and the PASCA (Central America AIDS) Project are two examples of organizational capacity assessment tools that were designed to monitor progress of specific capacity building activities. The SFPS Project used seven different instruments to measure different elements of organizational capacity in eleven organizations in West and Central Africa (see Box 1).

One explanation for the lack of application in M & E is a general reluctance among agencies working in capacity building to quantify the results of capacity measures. This lack of quantification occurs because the numbers produced often require considerable interpretation and are not wholly suited to making comparisons between subjects, or to constructing a “before and after” picture (Ellis, 1999). Consequently, few of the capacity assessment tools noted above have been validated for evaluation purposes. An exception is found in the PASCA project, which used an externally administered tool to validate the findings from a self-administered tool (see Appendix D). Moreover, the PASCA project has continued to use the externally administered tool at three points in time to monitor the effect of the project’s capacity building interventions ((MEASURE Evaluation, 2001)

In some cases, where self-assessment tool has become a capacity building intervention, it may preclude use of the tool for M & E purposes.

Box 1: SFPS INSTITUTIONAL DEVELOPMENT ASSESSMENT

BACKGROUND: The SFPS (Family Health and AIDS) Project is a regional USAID project working in West and Central Africa that aims to improve the capacity of its regional partner organizations. The institutional development assessment (IDA) methodology was developed to:

- Identify a baseline level of managerial, financial management and technical capacity.
- Identify an operational definition and method for measuring change in capacity among SFP Regional African partners over the five - year project

A baseline assessment of ten SFPS Regional African Partner Institutions (RAPI) in Burkina Faso, Cameroon, Cote d' Ivoire, Mali, Senegal and Togo was conducted in 1997. A follow-up IDA will be conducted in 2002.

METHODOLOGY: One-week in-depth case studies were conducted in each of the ten institutions. The multiple data collection methods included self-administered questionnaires, face-to-face interviews and direct observation. The data collection instruments used included:

- Organizational profile
- Document review (mission statement, annual report, etc.)
- Leader's Interview (how s/he directs the organization)
- In-depth interview (experiences and perceptions)
- Self-administered questionnaire of technical capacity at individual and org. levels
- Assessment of Organizational status (attitudinal ratings).

The IDA examined three dimensions of organizational capacity:

- *Management Capacity:* leadership, strategic and programmatic planning, marketing, logistics/supplies
- *Financial Capacity:* composition of financial resources and management and administrative systems
- *Technical capacity:* technical skills at both the organizational and individual levels

Source: Brechin, et al, 1998

4. Methodological Challenges to Measuring Capacity

There are numerous methodological challenges to measuring the four levels of capacity. Some of these challenges relate to the inherent nature and role of capacity and capacity building interventions, while others are a function of the early stage of development of capacity measurement.

Capacity and capacity building, as we have defined them, are dynamic and multidimensional. Capacity can improve, but it can also decline. Regardless, it is never static and is, therefore, difficult to capture. In addition, capacity occurs at several levels. In this paper we have identified four levels that are interdependent. Most existing tools only capture capacity building at a single level. None look at the relationship between levels.

It is also important that capacity measurement tools be able to capture different stages of development of health personnel, organizations, or health systems. The MSH organizational profile, for example, has identified different benchmarks for each indicator, according to an organization's stage of development (nascent, emerging, mature). Therefore, many of the practitioners consulted for this review argue that capacity measurement must be able to capture individual elements of capacity and combinations of elements, and relate them to the stage of development of the entity being assessed. Flexibility rather than standardization was often mentioned as a goal of sound and useful capacity measurement. Finally, capacity and performance are influenced by numerous contextual factors that need to be taken into account. However, the relative importance of single factors is still not known.

Another set of methodological challenges is related to measurement tools and indicators. To date there is little empirical evidence that indicates which elements of capacity are critical to performance. Therefore, the choice of indicators remains experimental.

Most of the existing tools, including those reviewed in the previous section, are self-assessment tools that rely on the perceptions of those being assessed. While such approaches have many advantages, they are not used to assess standardized indicators for the purpose of monitoring or

evaluating the success of a capacity building intervention. Moreover, many of the self-assessment tools are considered interventions in and of themselves. While practitioners value the role of these self-assessment tools in stimulating interest in capacity building and launching a process of change, they are less useful for conducting monitoring and evaluation in the strictest sense.

Another key methodological shortcoming of capacity measurement is the lack of experience in monitoring changes in capacity over time. For example, an agency may claim to support capacity building, but only measure one or more aspects of capacity at a single point in time. This approach fails to provide an assessment of whether capacity has grown or in fact diminished over time. In addition, little documentation exists regarding the range of steps and activities that comprise capacity development at the field level, or indeed the posited empirical links between capacity building inputs and performance outcomes (or even health and population impact). Unlike clinical care, there are few “gold standards” against which to measure aspects of system, organizational, health personnel or individual/community capacity required for effective and sustainable health service delivery or health system performance. Repeated measures could be used to capture the interim steps in capacity building processes as well as trends in outcomes. While a number of Cooperating Agencies or projects, such as INTRAH, SFPS, and PASCA, have recognized the importance of measurement over time, to date only PASCA has reported findings from longitudinal evaluations. Better techniques are required to capture the effects of capacity building, and elaborating the link between the process of capacity building and changes in performance and health status.

In addition to conducting repeated measures to monitor progress overtime, the use of multiple sources of data for triangulation may help capture some of the complex and dynamic changes occurring within systems, organizations and individuals/communities. An illustration is found in the monitoring the implementation of the family planning logistics system. The operation of a logistics system depends on the coordination of several departments within an organization (management, finance, inventory, transportation, and service providers). It would be useful to track changes in capacity and performance in all these entities, as well as to take an overall measure of capacity pre- and post-intervention. Tracking these changes would, thus, enhance the

validity of findings and illustrate the extent to which interventions have increased the capacity of individual departments as well as the overall logistics system.

V. CONCLUSIONS

Implementation of effective capacity building strategies must be based on an accurate review of existing capacity and the effectiveness of the capacity building interventions. The task of measuring capacity remains, however, one of the central challenges facing many health and population program managers. While some progress has been made in developing tools and indicators to measure human resource and organizational capacity, the validity and reliability of these tools is unknown. This report attempted to summarize the state of the art in measuring capacity and the effects of capacity building interventions. Further work will benefit greatly from additional input of evaluation professionals, as well as further application of data gathering tools in the field.

The following is a summary of the main conclusions of this report.

- Donor organizations are increasingly focused on the problems inherent in supporting sustainable health systems, requiring greater attention to building capacity within those systems. Despite this increased attention to capacity building, there is still little consensus on the role it plays in improving performance, or on approaches to measuring the effectiveness of capacity building interventions.
- Capacity is defined as “the ability to carry out stated objectives.” In the literature, it is described as a process and an outcome. Capacity develops in stages and is multidimensional. In the health sector, for example, capacity is required at four levels: health system, organization, health personnel, and individual/community. Common to all characterizations of capacity is the assumption that capacity is linked to performance. Nevertheless, understanding capacity measurement is hindered by 1) a lack of common understanding of the nature of the relationship between capacity and performance; 2) variation in what

constitutes “adequate” performance; and 3) the influence of the external environment on capacity and performance.

- The authors define capacity building as a process that improves the ability of a person, group, organization, or system to meet its objectives or to perform better. Similar to capacity, capacity building is: a multi-dimensional and dynamic process; can be conducted and measured on four levels of society; should lead to an improvement in performance at each of these levels; contributes to the sustainability of the health system; and is influenced by the external environment. An important distinction between this definition and others is the addition of the individuals and his/her community.
- This report presents a conceptual framework for mapping capacity that depicts the role of capacity in health system performance and the relationship between different levels of capacity (health system, organization, health personnel, and individual/community and performance). The framework outlines the elements of capacity that are critical at each level, and breaks down these components into inputs (resources), processes (functions), outputs, and outcomes. The framework could serve as a starting point for determining critical gaps in capacity prior to intervention, assist in the choice of capacity building intervention, and finally guide planners in developing a strategy for monitoring and evaluating the effect of capacity building activities. Of note in this conceptualization of capacity, is the importance attached to the interaction between different levels in the health system and the role of the external environment.
- Existing indicators to measure the effects of capacity building in health and population programs vary enormously. Most indicators focus on organizational and health personnel capacity because the majority of capacity-building interventions focus on these levels. We found fewer examples of system or community level capacity indicators, and no indicators to measure the linkages between the different levels.

- Similarly, most existing capacity assessment tools are designed to assess organizational capacity. The majority of tools reviewed (total 16) employ several data collection instruments. Half used a combination of qualitative and quantitative methods. More than half of the tools are applied through self-assessment techniques, while three tools use a combination of self and external assessment. Self-assessment tools can lead to greater ownership of the results and a greater likelihood that capacity improves. However, many such techniques measure perceptions of capacity, and thus may be of limited reliability if used over time. Very few capacity assessment tools were developed or have been used strictly for monitoring and evaluation purposes, and few have been validated for this purpose. The use of a self-assessment tool as part of a capacity building intervention may preclude its use for monitoring and evaluation purposes.
- Methodologies for assessing capacity and monitoring and evaluating capacity building interventions are still in the early stages of development. Experience of monitoring changes in capacity over time is limited. Documentation of the range of steps and activities that comprise capacity development at the field level is required to improve understanding of the relationship between capacity and performance, and capacity measurement in general. Finally, there are few examples of use of multiple sources of data for triangulation in capacity measurement, which might help capture some of the complex and dynamic capacity changes occurring within systems, organizations, program personnel, and individuals/communities.
- Methodological challenges to measuring capacity relate to the inherent nature and role of capacity and capacity building interventions in the health sector. Capacity and capacity building are never static and therefore difficult to capture. Capacity is multidimensional, and capacity development occurs in stages. In addition, there are numerous environmental or contextual factors that influence capacity and performance yet their effect is not well understood. Finally, since there is little empirical evidence indicating which elements of capacity are critical to health system performance, the choice of indicators to assess elements of capacity remains experimental.

- Documentation of the range of steps and activities that comprise capacity development at the field level is required to improve capacity measurement. Experience is needed in triangulation of data sources and use of assessment tools to monitor changes in capacity over time.

APPENDIX A

Sources of Capacity Building Indicators in the PHN Sector

MEASURE Evaluation has drawn on three databases as well as the existing literature to survey field practices with respect to capacity building activities, and monitoring or evaluating (M&E) capacity building progress or achievements. From each database, we extracted all indicators coded for sustainability of any type and reviewed them for their capacity building relevance.

One database consists of M&E indicators from a subset of USAID's Cooperating Agencies (CAs) involved in PHN projects, specifically CAs within two Divisions under the Office of Population: FPSD, or Family Planning Services Division, and CMT, or the Communications, Management, and Training division (Elkins, 1998). Indicators in this database were selected and coded by the CAs themselves, as directed by the Office of Population, for compilation by MEASURE Evaluation, and thus encompass a wide range of interpretation for indicators both planned and in current use.

A second database consists of program goals and indicators from USAID missions in Africa for two years. These data were gathered from the missions' annual reports, the USAID-required Results Review and Resource Request, 1997 and 1998, and therefore consist of indicators that have in fact been put to use for M&E purposes by missions (SO and intermediate level). A third and partially overlapping database covers indicators from USAID in three regions (Africa, Latin America and the Caribbean, and Asia Near East) for 1998 reports only. Each of these databases have been coded by MEASURE Evaluation in terms of their relevance to the M&E categories of Access, Demand, Quality, Effect, Outcome, and three non-exclusive dimensions of Sustainability (i.e., financial, managerial, and political).

APPENDIX B

Examples of Indices Used to Measure Capacity in Organizations

The examples given below come from four different projects that have all attempted, in one way or another, to build capacity either at an institutional or organizational level. These are also examples that have developed indices to measure the process of capacity building. These projects were selected, mainly, because they have relatively clear presentation of how and why they measured capacity as they did. Although they are all attempting to measure *capacity* to do something only one – PASCA – tried to measure a *change in capacity* – i.e. capacity building over time.

1. PASCA

Needs assessment (self-administered) conducted in 1996. In 1997, this assessment was validated and accompanied by a Institutional Capacity Assessment survey (see Box 3).

a) Management/Financial Sustainability Scale (MFSS) – 30 questions (ranges from 0 – 7 points). Organization got one point per criterion met from following list:

- organization mission
- internal structure
- human resource management
- strategic planning
- monitoring and evaluation
- information system
- financial and accounting structure

If NGO met criteria of at least 5 points, they were said to have sufficient capacity to delivery HIV/AIDS prevention projects. Between 1996 and 1998 the percent of NGOs (n=23) that scored 5 or more changed from 48% to 61%.

b) Systematic Approach Scale – 6 questions, (ranges from 0-3 on a scale). Organization got one point for meeting each criteria from the following list:

- project design based on behavioral or epidemiological research
- project utilizes some type of needs assessment/audience research
- project conducts monitoring and evaluation

If the NGO met the criteria of 2 or more points, the organization was regarded as having a Systematic Approach to HIV/AIDS. To measure change in capacity to “respond to the HIV/AIDS crisis” 23 NGOs were measured for capacity between 1997 and 1998. The percent who met the maximum 3 points (see above) changed from 13% to 61%, as measured by this scale.

2. Santé Familiale et Prévention du SIDA (SFPS)

A composite indicator (or index) of institutional capacity was developed to measure the capacity building of 10 organizations in West Africa in terms of their capacity for program development and implementation. This composite indicator was developed where strong capacity was defined as obtaining a level 3 (out of three possible levels) in at least 3 out of 4 previously defined areas. These areas were:

- strategic management
- marketing research and planning
- financial planning
- grant-/proposal writing

When conducting their research, the evaluators used a continuum ranging from 0 to 1, or from agree to disagree or likely to unlikely. The questions were phrased using a scale such as:

“Do you think there are adequate accounting systems in your organization?”

Do you agree? _____disagree. (mark along line with an x)

The responses were determined by measuring the spot on the line where the respondent had marked an “x” and converting it into a number from 0 to 1. Means for each question were then calculated to determine where on the continuum the responses fell. The team also used the procedure of having a team that included both internal and external people evaluate the same organization. This gets around the self-assessment bias by providing a counter-balance, but doesn't give, of course, a final answer.

A follow up institutional development assessment (IDA) is planned at the end of the project (2001), to measure change in each of the four capacity areas as well as overall institutional capacity.

3. PRIME/INTRAH – measuring progress towards sustainability in training

Index of Capacity Building – made up of 21 indicators to measure 13 components (of a framework for capacity building). Values for each indicator range from 0 – 4 (ordinal scale). The sum yields an overall index with scores ranging from 0 – 84. Examples of results seen were only given in a simple bar graph, which is hard to interpret.

Scores were added for all indicators and components, with all scores for each of the 13 components were standardized, results in each bearing the same weight for the final analysis.

4. MOST /MSH

This instrument contains general statements (reference criteria) about an organization's characteristics for each of 12 essential management components.

The 12 components are shared between 4 basic elements of management: Mission (knowledge and application), Strategic plan (marketing, and links to mission), Structure of organization (allocation of responsibility, delegation of authority) and Systems (collection and use of information, source of funds, financial management). To measure these components, a self-assessment is conducted which asks different members of the organization to score each component on a 1 to 4 scale, with 4 being the most advanced or capable.

**APPENDIX C:
Review of Existing Capacity Assessment Tools**

Tool	Developed By	Level of Assessment	Methodology	Self / External assessment	Single / Multiple Instruments
Assessing Institutional Capacity in Health Communication: A 5Cs Approach	Johns Hopkins University	Organizational	Quantitative assessment	External and self assessment	Multiple Instruments
Community-Based Distribution Interview Guide: A Gems Management Tool	FPMD	Organizational	Qualitative and quantitative assessment	Self assessment	Multiple Instruments
Discussion-Oriented Self Assessment (DOSA) Using PROSE methodology	Pact and USAID	Organizational	Qualitative and quantitative assessment	Self assessment	Multiple instruments
Enhancing Organizational Performance: A Toolbox for Self Assessment	IDRC	Organizational	Qualitative and quantitative assessment	External and self assessment	Multiple Instruments
Family Planning Effort Index (FPE)	The Futures Group/ Population Council	Health System	Quantitative and qualitative assessment	External assessment	Single instrument
Institutional Assessment Instrument (IAI)	World Learning Project Inc.	Organizational	Qualitative and quantitative assessment	External assessment	Multiple Instruments
Institutional Development Assessment (IDA)	SFPS	Organizational	Qualitative and quantitative assessment	External assessment	Multiple instruments
Integrated Health Facility Assessment (IHFA)	BASICS (USAID)	Organizational	Quantitative assessment	External assessment	Multiple Instruments
Management and Organizational Sustainability Tool (MOST)	FPMD/MSH	Organizational	Qualitative assessment	Self assessment	Single instrument
Management Development Assessment (MDA)	FPMD	Organizational	Quantitative assessment	Self assessment	Single instrument
Management/Financial Sustainability Scale (MFSS)	PASCA	Organizational	Quantitative assessment	External and self assessment	Single instrument

Tool	Developed By	Level of Assessment	Methodology	Self / External assessment	Single / Multiple Instruments
Organizational Capacity Assessment Tool (OCAT)	Pact/Ethiopia	Organizational	Quantitative assessment	Self assessment	Multiple Instruments
Outcome Mapping: A Method for Reporting on Results	IDRC	Health System Organizational	Qualitative and quantitative assessment	Self assessment	Multiple Instruments
Participatory, Results-oriented, Self-evaluation (PROSE)	Education Development Center and Pact	Organizational	Qualitative and quantitative assessment	Self assessment	Single instrument
Systematic Approach Scale (SAS)	PASCA	Organizational	Quantitative assessment	External and self assessment	Single instrument
The Manager: Capacity Assessment Toolkit Series	FPMD/FHI/MSH	Organizational	Quantitative assessment	Self assessment	Multiple Instruments

Acronyms:

IDRC: International Development Resource Center
 FHI: Family Health International
 FPMD: Family Planning Management Development Project
 MSH: Management Science for Health Inc.
 PHR: Partnerships for Health Reform
 SFPS: Santé Familiale et Prévention du SIDA

APPENDIX D

PASCA: From Self Assessment to External Assessment

BACKGROUND: PASCA is a USAID-funded project focusing on nongovernmental organizations (NGOs) that provide HIV/AIDS services in Central America. The project is designed to improve capacity in Central America to respond to the HIV/AIDS crisis with a particular focus on five countries in the region: El Salvador, Guatemala, Honduras, Nicaragua and Panama. PASCA was one of the first USAID projects to use a Results Framework. Specifically, the implementing partners - USAID, the EVALUATION Project and other stakeholders - defined the results to be achieved over the five-year project. The team established indicators for each level of results (special objective, intermediate results, lower level results) and identified sources of data needed to measure them.

During the first year of the project (1996), PASCA, with technical assistance from the International Planned Parenthood Federation/Western Hemisphere Region, Inc. (IPPF/WHR), conducted a self-administered NGO needs assessment study among NGOs which provided HIV/AIDS prevention services in the region and which had agreed to participate (n = 91). Although the needs assessment provided useful information for planning, the researchers felt that the self-administered methodology exaggerated the programmatic, administrative and managerial capacity of the NGOs. Therefore, a Validation Study was conducted in 1997 (as part of a larger Institutional Capacity Assessment) to determine the validity of the self-reported data. The Validation Study was conducted by the EVALUATION Project in collaboration with PASCA in order to provide an in-depth assessment of the management and programmatic needs of each NGO.

METHODOLOGY OF THE VALIDATION STUDY: Twenty-seven NGOs were randomly selected from among the 91 NGOs that participated in the self-administered 1996 NGO Needs Assessment study. The study had two parts: (1) the Needs Assessment portion, self-administered with only the questions necessary for validation, and (2) the staff interview, a face-to-face interview that collected more information for the Institutional Capacity Assessment (ICA). Each interviewer asked both open- and closed-ended questions and verified the existence of key documents. The validation study used questions from the original Needs Assessment study to construct two scales that are used in the PASCA results framework: the Systematic Approach Scale (SAS) and the Management / Financial Sustainability Scale (MFSS). SAS scores ranged from 0-3 and measured an organization's use of a systematic approach in the areas of project design; audience needs assessment; and monitoring and evaluation. The MFSS used a 7-point scale (0-7) based on the organization's reported structure and skills in the areas of organizational mission; internal structure; human resource management; strategic planning; monitoring and evaluation; financial and accounting structure; and information systems.

KEY RESULTS OF THE VALIDATION STUDY: When compared to the Needs Assessment survey the MFSS scores were lower. However, SAS scores were lower in only one area, the Monitoring and Evaluation section. The other two sections showed an increase. The Validation Study, in which self-reported answers were validated with document observation, provided data that more accurately reflected the capacity of the NGOs. Based on a joint decision by PASCA, USAID, and the MEASURE *Evaluation* staff, the data from this study served as the baseline data for evaluation purposes.

As a result of the validation study, PASCA adopted an external approach for subsequent assessments of NGO capacity. In 1998, the ICA (conducted for the second time during the mid-year project review, 1998) used the same methodology as the 1997 Validation Study.

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