

Mapping capacity in the health sector: a conceptual framework

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SUMMARY

Capacity improvement has become central to strategies used to develop health systems in low-income countries. Experience suggests that achieving better health outcomes requires both increased investment (i.e. financial resources) and adequate local capacity to use resources effectively. 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 the growing interest in capacity improvement, there has been little consensus among practitioners and academics on definitions of 'capacity building' and how to evaluate it. This paper aims to review current knowledge and experiences from ongoing efforts to monitor and evaluate capacity building interventions in the health sector in developing countries. It draws on a wide range of sources to develop (1) a definition of capacity building and (2) a conceptual framework for mapping capacity and measuring the effects of capacity building interventions. Mapping is the initial step in the design of capacity building interventions and provides a framework for monitoring and evaluating their effectiveness. Capacity mapping is useful to planners because it makes explicit the assumptions underlying the relationship between capacity and health system performance and provides a framework for testing those assumptions. Copyright © 2002 John Wiley & Sons, Ltd.

KEY WORDS: capacity; capacity building; performance; monitoring and evaluation

INTRODUCTION

Capacity improvement has become central to the development of health systems in low-income countries. Experience suggests that achieving better health outcomes calls for increased investment (i.e. financial resources) and adequate local capacity to use those resources effectively. 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.

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Despite increased attention to capacity building, there is still limited understanding of the role that capacity plays in ensuring adequate performance in health systems. Unanswered questions relate to defining the elements of capacity that are critical to performance, and determining what level of capacity is necessary for adequate performance. This lack of clarity originates, to some extent, from the difficulty of measuring capacity and is reflected in current efforts to monitor and evaluate capacity building activities. In analysing the effects of investment in the health sector, methods for assessing changes in service coverage, access and (increasingly) quality are well advanced and widely accepted (Bertrand *et al.*, 1996). However, many practitioners have found it considerably more difficult to capture that interim state or process—known as ‘capacity’—that reflects the ability to achieve and sustain coverage, access and quality over time. This paper aims to address that challenge by reviewing current knowledge and experiences from ongoing efforts to evaluate capacity building interventions in the health sector and begin the process of mapping capacity through the presentation of a conceptual model.

The present review draws on a wide range of sources to develop a definition of capacity building and a conceptual framework for measuring capacity building in the health sector. 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.¹ The paper forms part of a wider review of recent experiences in measuring the effect of capacity building derived largely from practice-based information and analysis of methodological challenges in this area of evaluation (Brown *et al.*, 2001).

BACKGROUND

Early efforts by donors to improve health outcomes in developing countries focused 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 behaviour during the project’s lifetime, but to ensure that local entities—organizations, groups, and even

¹This paper is also informed by a two-day meeting on Measuring Capacity Building in Health and Population Programs, hosted by the MEASURE Evaluation project (USAID) in November 1999 (MEASURE Evaluation, 2000).

health systems—can maintain these improvements over time, independent of external support.

A common approach to ensuring a 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 programme 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 begin to address the question of measurement by looking first at the notions of *capacity* and *capacity building*.

CAPACITY AND CAPACITY BUILDING

We find that *capacity*, like sustainability, is an elusive concept. It is described both as a process and an outcome; it is dynamic and multidimensional. To illustrate, 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). It develops in ‘stages of readiness’ which can represent improvements or decline (Goodman *et al.*, 1998). In all cases, capacity exists for the purpose of performing a certain action or enabling performance. Goodman *et al.* (1998) describe 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 information, 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 *et al.*, 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 grey literature and through discussions with practitioners, elaborates the concept of capacity building through the experience of measuring various elements of capacity and the effects of capacity building interventions (Africa Bureau, 1999; Brechin *et al.*, 1998; Fort, 1999; Kotellos *et al.*, 1998; Lusthaus *et al.*, 1995; MSH, 1996; PASCA, 1998). It is from this experience that many valuable lessons on capacity measurement are drawn.

In general, *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 reflect 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 *et al.*, 1995; INTRAC, 1998; 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.² 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). To some, the concept of capacity building resides in the increase of knowledge and the development of skills within individuals and their organizations and this is to be accomplished solely through training programmes where one person or group of people passes knowledge and skills to another person or group. To others, capacity building is a much broader concept that includes system-wide increases in capacity to meet stated objectives whether through increased skills, improvements in information flow or through increases in resource acquisition. 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 focusing 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.

DEFINING CAPACITY BUILDING

In the literature, definitions of capacity building 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 definitions of capacity building varied from 'very general statements to more specific 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 programme effectively'*

²There 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. the national economy), and many of these factors may even undermine attempts to improve a health system or organizational performance over the long term.

- ‘organizational strengthening (activities to improve the capacity of implementing organizations) and institutional development (activities to strengthen the position of organizations in their society)’
- ‘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’.

The literature reveals several characteristics of capacity building in the health sector. According to Lusthau *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. donor agencies or NGOs) assists the individual, organization or institution to improve its functions or abilities, especially in terms of specific skills (Taschereau, 1998). In practice, the term capacity building is used more frequently to describe external interventions rather than internal processes. To contrast the two, 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 which 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 comes in a variety of forms, including, but not limited to, technical assistance, training courses and financial packages (Kotellos *et al.*, 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 programme managers widely agree, in published literature and in discussions with practitioners,³ that there are three important and linked levels of capacity in the health sector: system, organizational and human resource or health programme personnel (Brechin *et al.*, 1998; Fort, 1999; Kotellos *et al.*, 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. All levels are elaborated below.

³A group of capacity building practitioners met at the Global Health Council meeting in Washington, DC on 22 June 1999. The notes from this meeting are available from the authors.

*Health system level*⁴

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; Partnerships 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).⁵ 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.

We believe that the health system performs certain functions independent of those performed by the institutions, organizations and personnel within it. Hence, we propose 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 involve designing 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, as yet, 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 has 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).⁶

Organizational level

The organizational dimension focuses on the structures, processes and management systems that enable specific health-related organizations to function effectively 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

⁴Some have labelled this level institutional development (Kotellos *et al.*, 1998; INTRAC, 1998) while others use the terms organization and institution interchangeably. To avoid confusion, we have adopted the term system.

⁵A health action is defined as 'any set of activities whose primary intent is to improve or maintain health,' (Murray and Frenk, 1999).

⁶The notion of stewardship goes beyond regulation to include: the setting, implementing and monitoring of 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).

management, information management, logistics systems, communication networks, or human resource development and management.

Human resource (health programme personnel) level⁷

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 outcomes may include clinical judgement and techniques, diagnostic and treatment, sterilization or sanitation practices; management and administrative practices, such as written record-keeping and supervision; or money management, problem solving and communications skills. The capacity of health personnel depends on the organization or institution in which a health worker or manager works, demonstrating a strong link between the different levels.

Individual or community level

Another dimension of capacity that is key to building a sustainable health system is the individuals that shape or benefit from the health system (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 role of individuals/community members in the health sector can take many forms at the health system, organizational or health personnel level. For example, as clients, 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 also playing an important role in shaping the system through participation in health management committees, lobbying decision-makers and using the media to demand the system respond to their needs. Finally, individuals and their communities also influence health outcomes and the need for health care through their own behaviour (Goodman *et al.*, 1998). Early recognition of illness, self-treatment and healthy living are paramount to individual health outcomes.

Common to all characterizations of capacity building is the assumption that capacity is linked to performance. The need for capacity building is often identified when performance is inadequate or falters. Moreover, it is often assumed that 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, this link between capacity and performance presents three challenges. First, 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

⁷Throughout the remainder of this report, human resource capacity will be referred to as health programme personnel.

critical to performance. Second, there is considerable variation in what constitutes 'adequate' performance. In the literature there are many 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.). Third, when the discussion of performance improvement is placed in the context of a resource poor health system, the measurement of capacity becomes even more problematic. Capacity, like capacity building, is dynamic, ongoing and multidimensional. Capacity is directly and indirectly influenced by contextual factors (or elements of the external environment), suggesting that the maximum level of capacity (and performance) that can be attained in any one entity may vary in different contexts (Murray and Frenk, 1999).

Based on this review, we have developed a broad 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 inputs and processes within the health system as a whole (seeking to improve the way it functions); organizations within the health system (to improve the way they function); health personnel (to improve their ability to perform work functions); and clients of the system and their communities (to improve their ability to engage productively with the health system through accessing services and influencing resource management, and improving their own health). Capacity building is further defined by the following five characteristics.

Capacity building in the health sector:

- Is a dynamic and continuous process
- Can occur and be measured on four mutually dependent levels of society: health system, organization, health personnel and individual/community
- Should lead to an improvement in performance
- Is influenced by the external environment
- Contributes to the sustainability of the health system, health-related organizations, and health personnel and individual/community behaviour

CONCEPTUAL FRAMEWORK

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

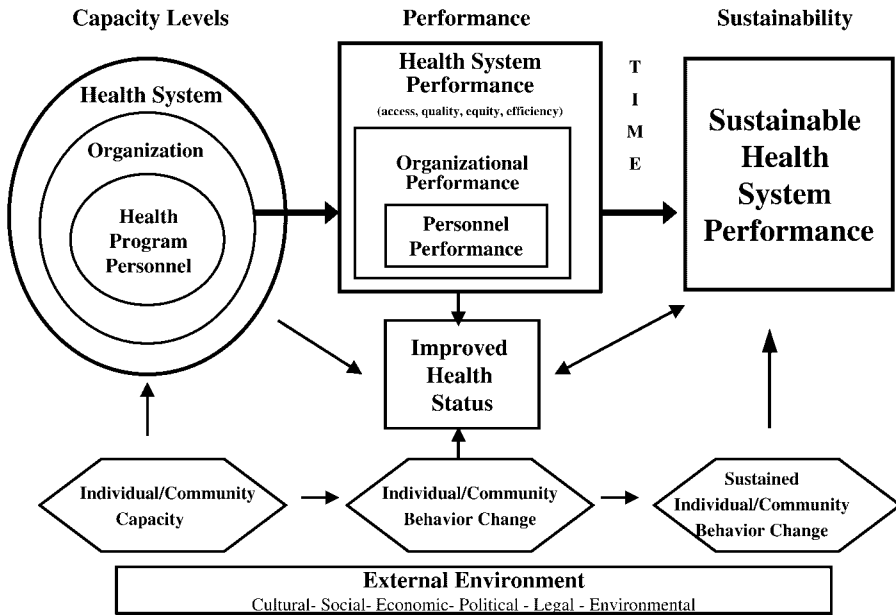


Figure 1. Overview conceptual framework

conceptualization of the role of capacity in health system performance. First, 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 break down 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). We did this to improve our understanding of the composition and complexity of capacity building at the different levels. 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 potential maps of capacity that represent the current status of capacity in a system or organization, in an individual or a community, 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 be used to guide planners in developing a strategy for evaluating the effect of capacity building interventions (defining appropriate indicators, selecting data gathering tools and developing a viable timeframe). We emphasize that the diagrams and their contents in Figures 2–5 are illustrative only, and that actual indicators or concepts selected by programme managers may be similar to these or very different. Obviously, different contexts provides different emphases in terms of what

is regarded as the appropriate level of performance, and which indicators are best collected to measure the performance.

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 clients 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. Understanding the linkages and inter-dependency between the levels are crucial elements to fully mapping capacity within a health system. However, we feel that before we understand how the capacity of one level influences the capacity at another, we need to be able to measure capacity as it exists on the separate levels.

*Overall framework for mapping capacity*⁸

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 behaviour 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 *et al.*, 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 *et al.*, 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.

⁸The framework for mapping capacity in the health sector uses the following definitions of terms. *Input*: Set of resources, including service personnel, financial resources, space, policy orientation, programme service recipients that are the raw materials required to perform functions at each capacity level. *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*: 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.

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, its effect on the 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, practising regular hand washing or eating well. Improvements in individual and community capacity should result in sustained behaviour 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 centre 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

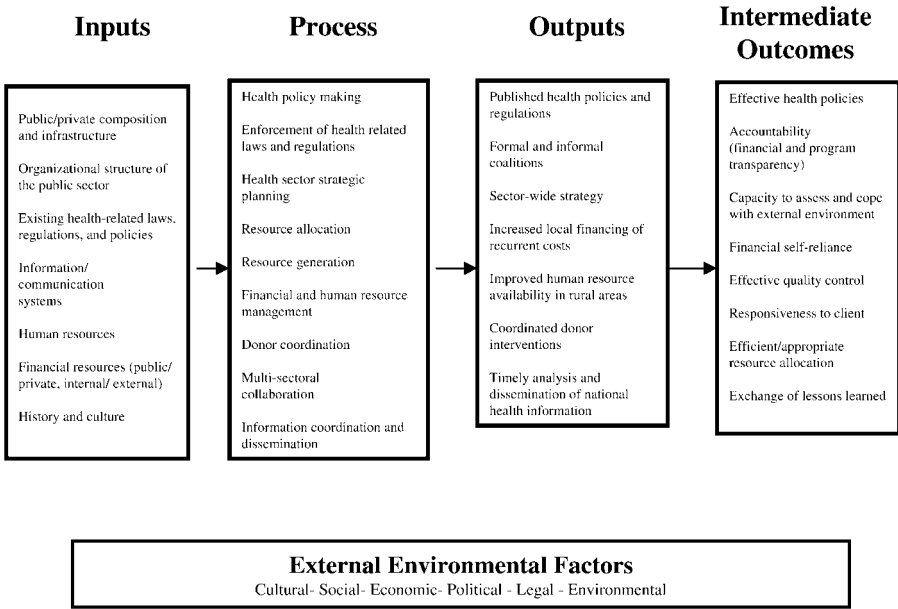


Figure 2. Health system capacity

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. A third 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 behaviours 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.

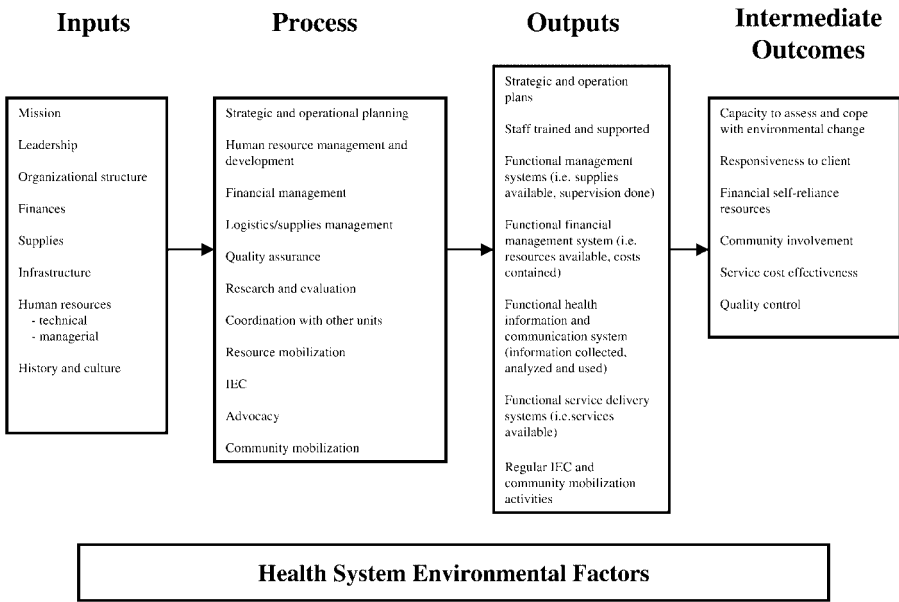


Figure 3. Health service and civil society organizations

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.

Health programme personnel level

Figure 4 presents the health programme personnel level. The term health personnel refers to those who perform clinical, managerial, or advocacy work within the system. For health personnel to perform effectively and contribute to 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 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

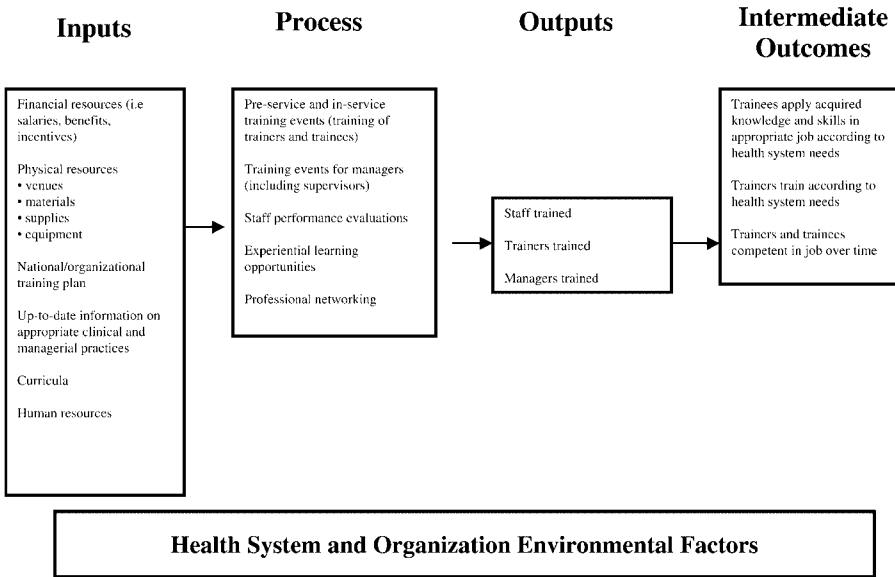


Figure 4. Health programme personnel

visits, and peer review. The outputs of these events are trained personnel. The intermediate outcome is the application of training knowledge and skills by health staff working in appropriate positions over time. Competent health personnel will provide better services and improve performance (see Figure 1).

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 plans for maintaining qualified personnel and providing them with an adequate environment in which to perform effectively. It is less common to find comprehensive organization/system level capacity 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

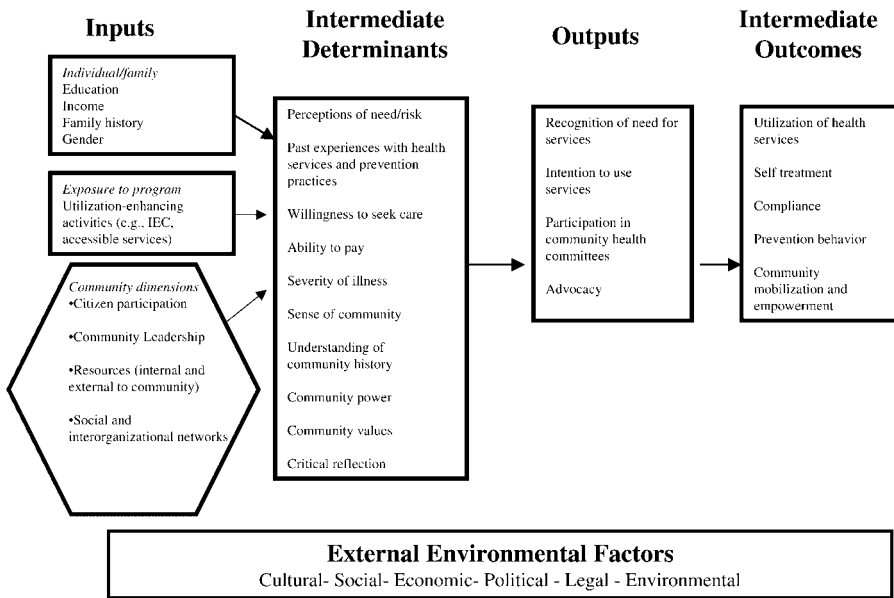


Figure 5. Individual/community capacity

service delivery, and to encourage the practice of certain behaviours 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 an 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 programmes. The individual/family factors include education level, income, knowledge (e.g. from family and neighbours) and family history. Other variables at this level relate to community cohesiveness or economic capacity. IEC programmes are the primary external exposure that could influence individual and community behaviour.

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 behaviour 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 behaviour 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.

CONCLUSIONS

Capacity building has become a key strategy to achieving improved and sustained health status. Effective implementation of capacity building strategies requires that investors are able to make an accurate and useful assessment of existing capacity and subsequently measure the effectiveness of capacity building interventions. The task of measuring capacity remains, however, one of the central challenges facing many health programme managers.

This paper presents a conceptual framework for mapping capacity that depicts the role of capacity in health system performance. It includes the four levels of capacity essential to health system performance—health system, organization, health personnel and individual/community—and details elements of capacity at each level in

Table 1. Organizational capacity. Outcome: financial self-sufficiency

Input	Process	Output	Intermediate outcome
Leadership	Strategic and operational planning	Staff trained	Financial self-reliance (ability to generate resources and maintain a healthy funding basis)
Finances	Financial management	Financial management system established	
Infrastructure	Research and monitoring and evaluation	External linkages established (to donors, partners, clients, community)	Strategic and operational plans developed
Human resources	Coordination w/other internal units	Resource mobilization	
Financial policy context	Creation/maintenance of linkages (external)	Advocacy	Quality assurance
Organizational culture context	Community mobilization	Human resource management and development	

This table was produced from the November workshop on capacity building measurement (MEASURE Evaluation, 2000).

terms of inputs, processes, outputs and outcomes. The next step is to apply the framework in the field, which in turn is expected to provide information to refine the framework.

The conceptual model we have presented could serve as a starting point for determining critical gaps in capacity at the outset of an intervention, choosing appropriate capacity building interventions, and for guiding planners in developing a strategy for monitoring and evaluating the effect of different capacity building interventions. Practical application of the framework will help advance the measurement of capacity and begin to clarify the relationship between capacity and performance at all levels of the health system.

Further work is also needed to develop tools and indicators to measure capacity. While there are some existing tools that measure specific elements depicted in the framework, there remain many gaps. Most familiar to health professionals are tools to assess the capacity at organizational and health personnel levels depicted in Figures 3 and 4, which have been the focus of much more capacity building activity and analysis than the other two levels. Measurement of health system and individual/community capacity must still be considered 'works in progress' since there is limited experience or analysis within the health sector on monitoring or evaluating capacity building efforts at these levels. Finally, a better understanding of the linkages between the different levels is needed. Clearly the four levels are interdependent, however, all of the existing measurement tools address a single level only (most commonly organization or personnel), leaving the linkage issue largely unresolved.

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