Converging Health Systems Frameworks: Towards A Concepts-to-Actions Roadmap for Health Systems Strengthening in Low and Middle Income Countries

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Debates around health systems have dominated the international health agenda for several decades. A wealth of contributions has been made to define, describe and explain health systems through multiple conceptual frameworks proposed to date. The array of health systems frameworks arguably provides an opportunity for identifying different appropriate approaches to meeting various country-specific challenges. At the same time, multiplicity of health systems frameworks also creates confusion at the country level as to which conceptual model to refer to for designing health systems strengthening interventions. Additionally, most debates have focused on conceptualizing health systems objectives, functions and performance measurement approaches, with rather less focus on identifying practical approaches to collective actions to strengthen health systems. The paper reviews multiple health systems frameworks available to date. The review finds that the frameworks, despite variations in terms of focus, scope, categorization and taxonomy, contain sufficient complementary elements to develop a comprehensive synergistic model. The paper proposes a converged conceptual framework for health systems as a departure point for further discussions. A frameworks-to-actions roadmap for collective approach to health systems strengthening is also proposed as the basis for developing a translational reference for harmonized planning and implementation of health systems strengthening interventions.

INTRODUCTION

The adoption of the UN Millennium Declaration and the Millennium Development Goals (MDGs) significantly changed the landscape of international development assistance during the last decade. The ambitious nature of the health- and nutrition related MDGs has also led to a growing momentum within the field of global health. In the early 2000s this momentum was marked by the establishment of several high-profile global health initiatives (GHIs) such as the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), the Global Alliance for Vaccines and Immunization (GAVI), the US. President's Emergency Plan for AIDS Relief (PEPFAR), the US President's Malaria Initiative (PMI), the Stop TB Partnership, the Roll Back Malaria Partnership and others, with the primary objective of reducing the burden of major diseases of public health importance. The establishment of these initiatives was associated with the expectation that strengthened health systems would be an inevitable consequence of increased health sector spending.

A recent WHO expert consultation on health systems and global health initiatives concluded, however, that while increased resources do bring positive "spillover" effects to broader healthcare systems, the categorical programs supported by these initiatives also produce unintended side-effects such as reducing systems' capacity to address the broader healthcare needs of the population.[1] Analytical evidence generated during the last few years also suggests that significant progress in scaling up disease control interventions is accompanied by a fairly complex range of positive and negative effects on other services and the system in general.[2] Recent studies in Benin, Ethiopia and Malawi reported some evidence of disease-specific investments contributing to stronger health systems, but also found that systemic weaknesses, especially in the areas of human resources and procurement systems, became more exposed as a result of scaling up disease-related interventions.[3] Another assessment in Mozambique, Uganda and Zambia reports that the major HIV donors–PEPFAR, Global Fund and World Bank's MAP–have helped establish AIDS-specific parallel systems and processes distinct from those for other health programs.[4] There are also concerns about the ability of health systems to effectively and efficiently absorb rapidly increasing resources through specific programs.[5] Additionally, growing empirical evidence indicates that in spite of the availability of effective interventions for many priority health problems, progress towards agreed health goals remains slow, suggesting that the primary bottleneck to achieving the MDG health targets are weak and fragmented health systems, which are unable to deliver the volume and quality of needed services.[6]

These and other findings have contributed to a shift in thinking about the interactions between disease-specific programs and healthcare systems. Strong and effective health systems are increasingly considered a *prerequisite* to reducing the disease burden and to achieving the health MDGs, rather than the *outcome* of increased investments in disease control. As a consequence, health systems strengthening (HSS) has risen to the top of the health development agenda.

The growing demand for HSS investments in countries, and growing commitments of global health initiatives and collaborating agencies to support HSS, demonstrate a recognition of the need to accompany the scale-up of stand-alone programs with broader health system strengthening. For example, GFATM received funding requests of USD 912 million and USD 1,236 million for HSS in Rounds 7 and 8, respectively, and the Technical Review Panel (TRP) recommended USD 356 million (R7) and USD 594 million (R8).[7] The GAVI Alliance announced an increase of its financial commitment to HSS by USD 300 million, bringing its total HSS budget to USD 800m by 2008.[8] The World Bank's lending for project specifically coded to include healthcare reforms (only part of all HSS-related lending) increased from USD 316 million in 2001 to USD 739 million in 2007.[9]

Acknowledging the increased importance of HSS in achieving better health outcomes, global health partners have been enhancing their commitments to HSS: The 62nd World Health Assembly issued a resolution urging the member states to "keep the issue of strengthening health systems based on the primary health care approach high on the international political agenda";[10] The World Bank revised its Health, Nutrition and Population strategy in 2007, where HSS is given one of the highest priorities, and is presently in the process of operationalizing it.[11] Also in 2007, DFID launched

a new health strategy, which will "continue to support multilateral approaches to national health initiatives, as long as they strengthen national health systems."[12] The Global Fund initiated consultations with technical partners on updating the HSS funding framework for Round 8 and is currently revising it based on the TRP Round 8 and Round 9 technical reports.[13] In 2008 GAVI commissioned an analysis of its HSS experience with the aim of producing actionable, evidence-based recommendations to improve the HSS application process, an HSS funding framework and mechanisms for providing technical assistance.[14] USAID has submitted the first ever HSS report to the Congress outlining the agency's HSS priorities[15].

Supporting the global health community's increased focus on HSS, the G8 leaders recently endorsed the report of the G8 Health Experts Group, which provides a framework for HSS and for fighting the spread of communicable diseases, and reiterated the commitment to provide USD 60 billion over the coming five years for health and disease control programs.[16] A special High Level Taskforce on Innovative International Financing for Health Systems (Taskforce) was set up in 2008 "to contribute to filling national financing gaps through mobilizing additional resources, increasing the financial efficiency of health financing, and enhancing the effective use of funds."[17]

In early 2009 the Chief Executives of the GFATM and GAVI informed the G8 Taskforce of their intention "to begin jointly programming GAVI Alliance and GFATM resources towards health systems strengthening."[18] In March 2009, the GFATM, GAVI and World Bank, with technical support from WHO, launched inter-agency consultations on aligning HSS funding frameworks with the aim of developing mechanisms for joint HSS funding and programming.

THE NEED FOR GREATER CLARITY ON HEALTH SYSTEMS AND HEALTH SYSTEMS STRENGTHENING

Political and financial support to HSS, combined with the international health community's increased attention to HSS in developing countries, has created a strong impetus for global health partners to collaborate and better coordinate their HSS strategies. The expression of growing needs for HSS investments from countries, the commitment from key donor agencies to meet those needs, and the WHO-facilitated process to strengthen synergies among technical partners–have produced increased momentum for enhancing the overall effectiveness and efficiency of HSS interventions globally.

To date, there has been a proliferation of multiple approaches to thinking about health systems and there are many ways in which the term "health system strengthening" is used.[19] Arguably, such conceptual diversity around HS/HSS, the lack of coordinated operational mechanisms, and lack of global division of labor for HSS financing and programming can create confusion at the country level, increase transaction costs and reduce overall effectiveness and efficiency of health system strengthening efforts.[20]

In order to enhance collective action at country level for strengthening health systems, better common understanding is needed on analytical approaches to health systems, along with some consensus on concepts, terms, and categories for health systems strengthening. More clarity in analytical,

technical, and operational thinking for global and country partners would help support aligned and harmonized HSS strategies. This could ultimately lead to developing a *common conceptual framework for health systems strengthening and a common operational roadmap for HSS.* The former could support a common understanding of the scope of HSS, what constitutes health system strengthening, how the progress in HSS is to be measured and how HSS investments can be analyzed. The latter would help clarify how different national and global health actors relate to HSS from the operational perspective.

For more clarity, an important distinction should be made between health systems (HS) frameworks, a common conceptual HSS framework, and a common operational roadmap for HSS. The first is a bird's eye view over the health system. It defines, describes and explains the health system, its objectives, structural and organizational elements, functions and processes. The second is action-oriented and outlines the courses of action necessary for enhancing the system's objectives, functions and processes, and for strengthening the system's overall performance. The first should serve as a technical reference for designing the second. The third defines mechanisms for coordinating and harmonizing global and country partners' HSS investment strategies and policies, program support systems & processes, and operational, technical & analytical tools. It is informed by both–the HS and HSS frameworks. The challenge is that multiple HS frameworks have been proposed, which are diverse in terms of their focus, scope, taxonomy, linguistics, usability and other features (see Table 1).[21] Such diversity of health systems frameworks contribute to the lack of clarity around the concept.

Table 1: An illustrative list of proposed conceptual frameworks for health systems

An Illustrative List of Multiple Health Systems Frameworks:
• Actors framework (Evans, 1981)
• Fund flows and payment framework (Hurst, 1991)
• Demand-supply framework (Cassels, 1995)
• Performance framework (WHO, 2000)
• Control knobs framework (Hsiao, 2003)
• Reforms framework (Roberts, Hsiao, Berman, Reich, 2004)
• Public management framework (Khaleghian, Das Gupta, 2004)
• Capacity framework (Mills, Rasheed, Tollman, 2006)
• Building blocks framework (WHO, 2007)
• Essential public health functions framework (PAHO, 2008)
• Systems framework (Atun, 2008)

Source: R. Atun, N. Menabde, "Health Systems and Systems Thinking" in R. Cocker, R. Atun, M. McKee, *Health Systems and the Challenge of Communicable Disease*

Despite being diverse, various health systems frameworks are complementary, in that they offer synergistic views to the health system and place high focus on its various elements. The discussion below provides an analytical overview of various HS frameworks. It also explores whether it is feasible to converge multiple HS frameworks to develop a common synergistic model. A converged HS framework would be a more effective technical point of reference for

designing a *common* HSS conceptual framework than any single HS framework alone. The common conceptual HSS framework in turn would aid country and global partners in designing harmonized and aligned country HSS strategies.[22]

OVERVIEW OF HEALTH SYSTEMS FRAMEWORKS

The availability of an array of conceptual frameworks for health systems arguably provides an opportunity for identifying different appropriate approaches to meeting various country-specific challenges. At the same time, multiplicity of health systems frameworks also create confusion at the country level as to which conceptual model to refer to for designing health systems strengthening interventions.[23] Additionally, different definitions, methods, tools and strategies promoted by different donors and technical and implementing agencies, as a result of applying different health systems frameworks into practice, may hinder collective action for better outcomes.[24]

Health systems frameworks vary in purpose, in the weight they place on specific concepts and health systems elements, and in the terminology and taxonomy they use for defining, describing, explaining and classifying health systems objectives, functions and processes. Cumulatively, there may be value-added in the development of multiple frameworks, when the information contained in them provides more comprehensive overall picture of the health system than any single framework individually.

One important point to mention at the outset is that many contributions to the discussion about health systems acknowledge that outcomes are the result of many determinants. In many cases, health system frameworks are really about the *health care system*, which is often the main domain that policy makers can affect and which is acknowledged to sit within a larger *health system*. A number of authors make reference to a wider set of determinants and processes and sometimes include elements of it in their health system frameworks, but the complexity of this wider canvas has proved difficult to manage comprehensively.

Multiple HS Frameworks

Drawing on earlier work by Evans who identified four main sets of actors in health care systems–the population to be served; health care providers; third-party payers; and government as regulator–Hurst and colleagues defined health systems in terms of fund flows and payment methods between population groups and institutions.[25] They identified seven major subsystems of financing and delivery of health care, namely three voluntary insurance systems (private reimbursement, contract and integrated models), three compulsory insurance- or tax-funded models (public reimbursement model, contract and integrated models) and the direct, voluntary out-of-pocket payment model.

Other commentators have described health systems in terms of the economic relationship between demand, supply and intermediary agencies which influence the supply-demand relationship.[26]

There are several frameworks that have focused on analysis of health system reforms. That developed by Kutzin enables exploration of health systems reform through a financing lens.[27] In earlier studies he and McPake

also suggested a 3-step approach to evaluating health reforms (i) key contextual factors driving reform; (ii) the reform itself and its objectives, and (iii) the process by which the reform was (is being) implemented.[28]

The approach developed by Frenk focused on the dimensions of health system reform and interrelationships among health system components.[29] He conceptualized the health system as a set of relationships among five major groups of actors: the health care providers, the population, the State as a collective mediator, the organizations that generate resources, and the other sectors that produce services that have health effects. He also identified four policy levels at which health system reform operates: systemic, programmatic, organizational and instrumental

Mills and Ranson conceptualized health systems in terms of four key functions and four key actors.[30] Their framework or "map" depicted the interplay between these four functions (regulation, financing, resource allocation, service provision) and the major stakeholders involved in each: government or professional bodies responsible for regulation; the population (including patients); financing agents responsible for collecting and allocating funds; and service providers.

Roberts, Hsiao, Berman, and Reich (2003) conceptualized a health system as "a set of relationships where the structural components (means) and their interactions are associated and connected to the goals the system desires to achieve (ends)".[31] The framework identifies five major "control knobs" of a health system which policy-makers can use to achieve health system goals: financing, macro-organization, payment, regulation and education/persuasion. This framework has been used as the basis for the World Bank Institutes Flagship Program on Health Sector Reform and Sustainable Financing, now renamed Health System Strengthening.

Three frequently cited health systems frameworks have been proposed by WHO. The 2000 World Health Report[32] defined a health system as one that includes all actors, institutions and resources whose primary intent is to improve population health in ways that are responsive to the populations served, and seeks to ensure a more equitable distribution of wealth across populations. It outlined four key functions of a health system which drive the way that inputs are transformed into health system outcomes: resource generation, financing, service provision and stewardship.

Another contribution from WHO was the 2007 report "Everybody's Business: Strengthening Health Systems to Improve Health Outcomes" which proposed practical ways to organize health systems into 6 operational "building blocks": service delivery, health workforce, information, medical products and technologies, financing, and leadership and governance.[33] The building blocks approach is a useful means for locating, describing and classifying heath system constraints, for identifying where and why investments are needed, what will happen as a result, and by what means the change can be monitored.

More recently published by WHO 'primary healthcare' framework (2008) identified four broad policy areas for essential changes: (i) dealing with health inequalities by moving towards universal coverage, (ii) putting people at the centre of service delivery, (iii) integrating health into public policies across sectors, and (iv) providing inclusive leadership for health governance.

The World Bank Strategy for Health, Nutrition, and Population Results defined health systems in terms of functionality, defined by health service inputs (resource management); service provision (public and private); health financing (revenue collection, risk pooling, and strategic purchasing); and stewardship (oversight).[34] The Bank's concept of stewardship resembles that of the WHO, in that it involves establishing the policy framework to govern the entire health system; the institutional framework in which the many actors in health must interact; coordination with non-health sectors; and the generation of data for decision-making.

In the "systems thinking" approach to health systems analysis, Atun (2008) further expanded other HS frameworks to take into account the context within which the health system functions, namely, the demographic, economic, political, legal and regulatory, epidemiological, socio-demographic and technological contexts ("DEPLESET").[35] He also introduced the concept of "health system behavior" and focused on complex interactions between health systems elements and between these and contextual factors. He proposed "systems thinking for seeing the whole"–a framework for seeing interrelationships and repeated events rather than things, for seeing patterns of change rather than static "snapshots". The systems framework identified four levers available to policy-makers when managing the health system: stewardship and organizational arrangements, financing, resource allocation & provider payment systems, and service provision. The intermediate goals identified in the framework (equity, efficiency (technical and allocative efficiency), effectiveness and choice) are frequently cited in other frameworks, sometimes as end goals in themselves. The Systems framework has been extended to develop a Systemic Rapid Assessment (SYSRA) toolkit which allows simultaneous and systematic examination of the broad context, the health care system and the features of health programs (such as communicable disease control programs).

Classification of HS Frameworks

Hsiao and Siadat introduced a useful classification of health systems frameworks by grouping them into descriptive, analytical, and deterministic and predictive categories.[36] This classification is summarized in the Table 2 below, followed by discussion:

Table 2: Classification of Health Systems Frameworks

Perspective/Type	Researchers/Organizations
Descriptive	
Sub-systems	Various
	Roemer (1991, 1993)
National	European Observatory (HiTS)
	WHO Regional Sites
Analytical	
Fund Flow	Hurst (1992)
	OECD

	Anell and Willis (2000)
	Docteur and Oxley (2003)
Functional	Londono and Frenk (1997)
	WHO (2000)
	Mills and Ranson (2001, 2006)
	The World Bank (2007)
	The Global Fund (2008)
Statistical Correlation	Nixon and Ulmann (2006)
	Anand and Bärnighausen (2004)
Deterministic and predictive	
Actuarial models	Office of the Actuary, CMS
Economic models	Yett , Drabak, Intriligator, et al (1972)
	Feldstein-Friedman (1976)
Macro-policy model	Hsiao (1997); (Roberts, et. al. 2003)

Source: Hsiao and Siadat 2008.

Descriptive Models: Basic descriptive models apply to both sub-systems and national systems, while more complex, analytical concepts to health systems apply at the national level. The basic descriptive models are most relevant for general understanding of health systems. They essentially provide a basic description of the systems themselves, their financial and human resources devoted primarily to improving health, existing programs and how they operate, the key stakeholders involved and may include the basic institutional arrangements. In other words, the descriptive approach tells us the components within the system, but not how the system works. It does not explain why any particular system would perform better than another.

At the sub-system level, the descriptive models can be further sub-divided into several categories: "Service Delivery Sub-Systems", which entail the notion of health systems focused on providing services at different level (e.g. primary care, or secondary and tertiary care); "Disease Sub-Systems", which encompass disease-specific programs such as HIV/AIDS, TB, malaria or vaccine preventable diseases; "Operational Sub-Systems", such as those focused on various operational elements (e.g. procurement and distribution mechanisms) and others.

Some national level systems can also be viewed through a basic descriptive model. A classic example is one defined by Roemer who described a health system as, "the combination of resources, organization, financing and management that culminate in the delivery of health services to the population". This framework describes in detail the various resources (e.g. human resources, infrastructure, health commodities, and knowledge) and health programs providing services (e.g. government, volunteer agencies, private agencies) as well as the economic support, management and service delivery mechanisms at play[37] A further example of the basic descriptive model at the national level is that of the European Observatory on Health Systems and Policies' Health Systems in Transition (HiT) country profiles that provide detailed descriptions of each European health care system as well as the various reform and policy initiatives underway.[38]

Analytical Models: Analytical models go beyond describing what exists and go into greater depth in analyzing some major aspects of a system and its

complex operations. Two types of analytical models–fund flow and functional models are described below:

The fund flow models describe and analyze the fund flows between patients, government, insurers, hospitals, clinics, etc. The utility of the fund flow model is limited in that it describes just one part of the national health system, without considering the interaction of the system's various components.

Functional models describe and analyze the functional components of a system such as inputs (financial, human resources, facilities), stewardship, governance, and regulation, etc. Functional models provide a more analytical view in examining all major functions and programs, at all levels. Different functional models have been proposed, however many contain a similar set of overarching categories: financing (revenue collection, purchasing, pooling), service provision and delivery (public and private), resource allocation, resource generation, and regulation. The functional frameworks offer a more holistic and sophisticated analysis of health systems than do fund flows or purely descriptive models. However, the functional models do not tell us what works and what does not, how policy can improve the functions, and further do not reveal the interaction among the various health system functions.

Deterministic and Predictive Models: Deterministic models differ from analytical models in one key aspect. They try to answer a more fundamental question: what factors influence how well the functions perform in a health system? Ultimately, deterministic models have to answer the questions - why do some health systems work better than others? How can policymakers make a national health system perform better?

Over the past few decades, specialists from several disciplines have developed deterministic models of national health systems. Economists, actuaries and public policy scientists have been most active in this effort. A few system dynamic specialists have also attempted to model the health system. Most efforts have been directed at modeling the national health system to allow predictions about future health expenditures or human resource requirements. Hsiao and Siadat sub-divide the deterministic model in the actuarial, economic and macro-policy models and argue that the macro policy model provides the most comprehensive approach for policymakers to examine the key elements of a health system that can be managed to strengthen it. They provide a detailed description of the "control knobs" framework as an example of the macro-policy model. This model particularly focuses on the needs of policymakers who want to know what policy instruments will allow them to measurably affect desired outcomes. This macro policy model was developed through a process of scientific inquiry involving: observation, hypothesis formulation, prediction, test and experimentation. First, the authors worked closely with more than two dozen nations in their planning of major health system reforms. The authors observed the problems that confronted these countries and scrutinized what policy instruments policymakers could use to produce health system improvements. These instruments had been tried by other nations, producing a great deal of accumulated evidence on their appropriateness and impacts. From the observations and available evidence, the authors developed hypotheses to formulate the model. Subsequently, this model has been tested

in many countries interested in strengthening their health systems. Evaluations and experiments are being conducted.

A CONVERGED HEALTH SYSTEMS FRAMEWORK?

Should there be an effort to develop a common health systems framework? Would a converged framework would bring a pragmatic added value to international health assistance? Is there sufficient common ground in the current varied set of health systems frameworks to combine their components to create a converged, comprehensive model? These questions are explored below. An initial sketch of the complementary areas of multiple health systems frameworks, is also proposed.

As shown above, a rich literature exists contributing to understanding what a health system is, what are its component parts, what factors drive its performance, how can policy makers go about improving the health system, and how can one predict the effects of health system change on its results. This rich literature has given rise to a variety of views, but no single view. This variety of views represents different purposes as well as different differences in principles, focus, and empirical observation.

Much resources and energy have been spent on technical discussions about the merits of some frameworks over others. New health systems frameworks are proposed, presumably because their authors perceive that they fill a gap in knowledge or understanding. But it is difficult to demonstrate that empirically.

Arguments in favor of a converged health systems framework suggest that it would simplify the tasks of the health sector actors by providing a user-friendly, yet comprehensive tool that can be applied as a technical point of reference for designing health system strengthening strategies. It could be applied for addressing institutional, functional, operational, structural and other types of health systems challenges. It could be applied to various purposes such as programming, policy-making or research. It would allow consideration of the complex interactions among various elements of the health system, and between the health sector and external factors. And it would facilitate more effective collective action at country level to implement health systems strengthening activities.

Areas of Complementarity in Existing Health Systems Frameworks:

Health Systems Goals: Among the health systems frameworks reviewed, there is an overall consensus that the health system is a complex, multidimensional domain of actors and actions, which produce outcomes that societies value. One of the dimensions encompasses the health system's goals. These are independent variables, in that the goals remain constant (although the levels of their attainment are indeed dynamic) irrespective of the type of the health system, or changes within the system and its surrounding environments. With some differences in definitions used, there seems to be a good consensus among the health system frameworks that the health systems goals should include : (i) improved health status, (ii) protection against health related financial risk, (iii) responsiveness to needs, and (iv) satisfaction of consumers' expectations. There are important areas of debate about how societies arrive

at a consensus about health system goals and to what extent goals are universal.

Overarching Principles: There also seems to be a consensus on the presence of some "overarching principles" or "intermediate objectives" or "characteristic features" which include equity, efficiency, sustainability, quality, access, coverage, safety, choice and other cross-cutting aspects. They can be targeted by health system strengthening interventions, but they are results of these interventions, and often of multiple interventions and health system processes that take place concurrently. For example, strengthening equity requires adjustments of several components/areas, which cumulatively determine the level of this composite concept, such as - planning, resource generation, resource allocation, payment methods, planning etc.

Processes/Control Knobs: Various frameworks differ in the way they define yet another dimension of the health system, although the dimension itself is present in most frameworks. Some refer to this dimension as "processes", putting emphasis on the actionable constituents of the concepts grouped under this category. Others describe them as the means for implementing adjustments, labeling them "control knobs". This dimension combines concepts such as organization, regulation, integration, decentralization, resource generation and resource allocation. In other words, these are the concepts which either describe what happens within the health system as a course of action and how it happens (e.g. resource allocation can be a "process" in itself, and it may be implemented through cross-subsidization, or through changing providers' reimbursement mechanisms), or describe them as power mechanisms in the hands of health system actors, application of which may result in certain adjustments to the system (e.g. resource allocation can also be a "control knob" – an instrument through which certain processes within the health system, for example hospital mergers, can be affected).

Building Blocks/Functions: Similarly, various frameworks seem to also address a dimension which is referred to either as "building blocks" to describe structural and institutional aspects of the concepts to which they correspond, or "critical health system functions" to emphasize functional aspects. This dimension includes concepts such as service delivery, health information, health workforce, technologies and commodities, demand generation, governance and financing. From the structural/institutional perspective these are quantitative concepts referring to inputs, (e.g. "technologies and commodities" may refer to a specific piece of equipment or a type of drug procured, "health information" to an M&E system with indicators, data analysis software, reporting templates etc.). From the functional perspective these are qualitative concepts describing the means of achieving the progress in implementing the corresponding function (e.g. "technologies and commodities" may refer to activities aimed to strengthen supply-chain management system, "health information" may refer to institutionalizing the data collection system, technical capacity building etc.). It should be noted that the "building blocks/functions" and the "processes/control knobs" are not exclusive (i.e. a stand alone "block" or any of its components, may also be present under another "block"). For example,

technologies can be a "block" in itself, but also can be a component of service delivery.
The table below summarizes the four complementary dimensions identified in various health systems frameworks:

Table 3: Complementary Areas of Various Health Systems Frameworks

Dimensions	Components
Goals:	· Better Health · Financial Protection · Responsiveness · Satisfaction
Overarching Principles: (Intermediate Objectives, Characteristic Features)	· Equity · Efficiency · Sustainability · Quality · Access · Coverage · Safety · Choice
Processes/Control Knobs:	· Resource Creation · Resource Allocation · Payment · Organization · Integration · Regulation · Behavior
Building Blocks/ Critical Functions:	· Services · Health Workforce · Health Information · Technologies & Commodities · Demand Generation · Financing · Governance

Further to the above dimensions where various health systems frameworks seem to be complementary, multiple health systems frameworks also share views on a number of additional provisions that are proposed as essential constituents of the health system. For example, as mentioned above, several frameworks explore a vibrant context, entailing demography, epidemiology, politics, economy, technology and other elements, within which the health system is placed, and suggest that any dynamics in the state of each of these external factors may affect health systems (and vice-versa) and consequently may determine priorities for health systems strengthening interventions.

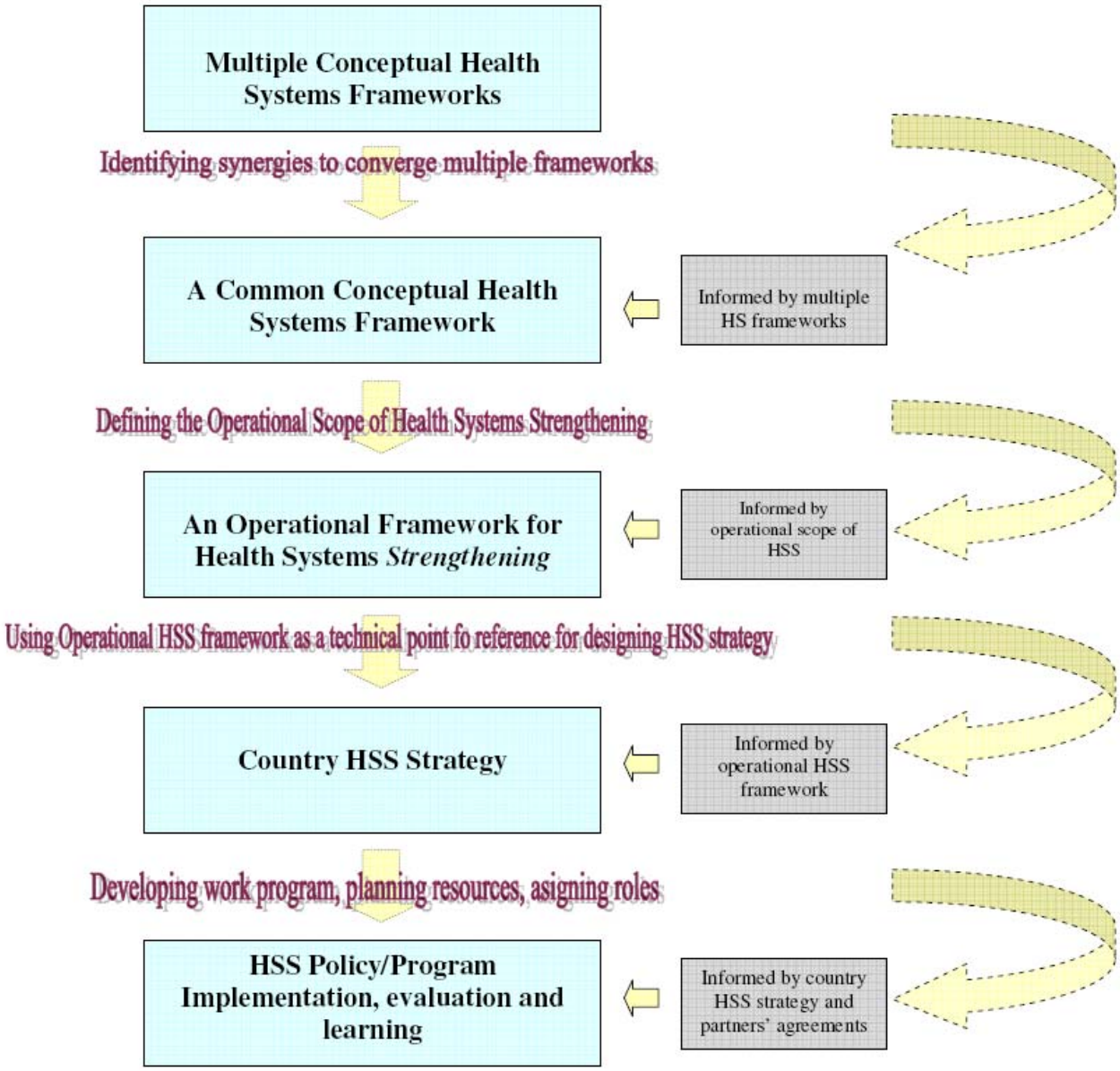
Also, high importance is given to the complex nature of relationships between various aspects of the health system, such as processes, functions and structures. And it is emphasized that these interactions too, in addition to the state of the individual aspects, are ultimately connected to the goals.

Almost all frameworks describe the "Processes/Control Knobs" and the Functions/"Building Blocks" at their aggregate levels, while for translating the health systems framework into a health systems *strengthening* framework it would be practically applicable to disaggregate these concepts at an operational level (e.g. "service delivery", both as a "building block" and as a "function" can be disaggregated into facility improvement, technical capacity building, referral system development... etc.). Disaggregation of all "Processes/Control Knobs" and "Functions/"Building Blocks" at the operational level sub-components would produce a practically applicable taxonomy that can be used as a point of reference for selecting interventions to strengthen corresponding structural, functional, process and control elements of the health system. Such classification would be especially useful for enhancing collective actions for health systems strengthening, as it could serve as a basis for developing joint inter-agency performance measurement and resource tracking frameworks.

FROM FRAMEWORKS TO ACTIONS: A ROADMAP FOR A COMMON APPROACH TO HSS

The proposal for a converged HS framework should not be considered yet another effort to design an additional conceptual approach to explaining health systems, but rather as an element of a *concepts-to-actions roadmap* for better collective action to strengthen health systems in developing countries. It could be the first step towards developing a translational approach for practical utilization of theoretical concepts for designing action-oriented HSS strategies. Figure 1 below provides a graphical illustration of such a roadmap. Implementing the roadmap entails joint contributions from the global and national partners for developing a set of commonly shared technical and analytical tools, and for aligning actors' HSS approaches, organizational processes, programmatic and financial systems. Some elements included in the roadmap are already a work in progress under the IHP+, Harmonization of Health in Africa and other global and regional partnership initiatives. Among them, the recently initiated collaborative effort of the World Bank, Global Fund and the GAVI Alliance, with technical support and facilitation from WHO, is aimed at preparing a common platform for joint funding of HSS interventions in developing countries, in line with the Paris Declaration, the Accra Agenda for Action (AAA) and the IHP+ principles. In addition to designing the joint funding platform, this initiative also contributes to the ongoing efforts of a wider range of international health actors focused on harmonizing various HSS operational elements, practically applicable for effective collective action for HSS, such as HSS performance measurement and evaluation systems, HSS TA provision, HSS classification system, analytical HSS needs assessment methodology, and a range of systems and processes for joint HSS funding and programming.

Figure 1: A Translational Frameworks-to-Actions Roadmap for HSS



CONCLUSION

Debates around health systems have dominated the international health agenda for several decades. A wealth of contributions has been made to explain health systems through multiple definitions, frameworks and models. Most debates have focused on conceptualizing health systems objectives, functions and performance measurement approaches, with rather less focus on practical solutions for collective action to strengthen health systems in developing countries. This review of available health systems frameworks identifies a common ground and explores the feasibility of converging

multiple HS frameworks as a common technical point of reference for collective actions to strengthen health systems in developing countries. A concepts-to-actions roadmap is also proposed as the means for translating concepts and theories into practical interventions. Further debates, and a coordinated examination of the principles of congregating conceptual approaches to HS and HSS, may assist the global and national partners to enhance their harmonization and alignment efforts at both–the country and the global levels, reduce transaction costs and to achieve overall better HSS outcomes more effectively and efficiently.

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[1] World Health Organization, "Maximizing positive synergies between health systems and Global Health Initiatives." Available at: http://www.who.int/healthsystems/PosSyn3rdExpCons_HR.pdf.

[2] Open Society Institute, "Global HIV/AIDS initiatives in Zambia: issues of scale-up and health systems capacity." Available at: http://www.ghinet.org/downloads/Zambia_GHI_Final_Interim_Report_Final_May08.pdf; Victor Mwapasa and John Kadzandira, "Effect of global HIV/AIDS initiatives on human resources at subnational level in Malawi." Available at: http://www.ghinet.org/countrystudies_africa_malawi_study2.asp.

[3] Kate Stillman and Sara Bennett, "System-wide effects of the Global Fund: interim findings from three country studies." Available at: http://pdf.usaid.gov/pdf_docs/PNADF196.pdf.

[4] Nandini Oomman, Michael Bernstein, and Steven Rosenzweig, "Seizing the opportunity on AIDS and health systems." Available at: http://www.cgdev.org/files/16459_file_Seizing_the_Opportunity_web.pdf.

[5] Phyllida Travis et al, "Overcoming health systems constraints to achieve the Millennium Development Goals," *The Lancet* 364, no. 9437 (2004): 900-906.

[6] *Ibid.*

[7] The Global Fund. "Round 7 and Round 8 Technical Review Panel reports." Available at: http://www.theglobalfund.org/en/trp/?lang=en.
[8] Clare Dickinson, "Global health initiatives and health systems strengthening: the challenge of providing technical support." Available at: hlspinstitute.org/files/project/216258/TS_for_HSS_June08.pdf.
[9] World Bank. "HNP Lending Data." Available at: http://siteresources.worldbank.org/EXTHNPSTATS/Resources/HNPTheme.xls.
[10] World Health Organization, *World Health Assembly Report* (Geneva: WHO, 2009).
[11] World Bank, *Healthy development: the World Bank strategy for health, nutrition and population results* (Washington, DC: The World Bank, 2007).
[12] Department for International Development, *Working together for better health* (London: DFID, 2007).
[13] World Health Organization. "The Global Fund's Strategic Approach to Health System Strengthening." Available at: http://www.who.int/healthsystems/gf21.pdf; The Global Fund. "Report of the Technical Review Panel on the Round 8 Proposals." Available at: http://www.theglobalfund.org/en/trp/?lang=en
[14] The Global Alliance for Vaccines and Immunisation, *Health Systems Strengthening Tracking Study, Synthesis Report* (Geneva: GAVI Alliance, 2009) (Unpublished document); The Global Alliance for Vaccines and Immunisation, "Strengthening Technical Support." Available at: http://www.gavialliance.org/resources/20090116_GAVI_Technical_Support_Report_Final.pdf.
[15] United States Agency for International Development, "Sustaining Health Gains: Building Systems. USAID Report to the Congress." Available at: http://www.usaid.gov/our_work/global_health/hs/publications/hss_report.html.
[16] Miyata Kazuo, "G8 Leaders Welcome Framework for Action on Global Health: 'Takemi Working Group's' Presence Felt." Available at: http://www.jcie.org/080709_SankeiE.pdf; Japan Center for International Exchange, "G8 Hokkaido Toyako Summit Follow-Up: Global Action for Health System Strengthening Policy Recommendations to the G8." Available at: http://www.jcie.or.jp/japan/pub/publst/1434.htm; International Health Partnership and Related Initiatives, "Videoconference Note-for-the-Record: International Health Partnership and Related Initiatives Meeting of WHO's Director-General and Development Partners." Available at: http://www.internationalhealthpartnership.net/pdf/IHP+%20Dev_Partners_VC_Minutes_EN_03_05_June_2008.pdf
[17] High Level Taskforce on Innovative International Financing for Health Systems, "Terms of Reference and Management Arrangements, v4." Available at: www.internationalhealthpartnership.net.
[18] The Global Fund and The Global Alliance for Vaccines and Immunisation, "Joint Letter to PM Gordon Brown and WB President Robert Zoelick, from Julian Lob-Levyt (GAVI) and Michel Kazatchkin (TGF)." Available at: http://www.internationalhealthpartnership.net/pdf/IHP%20Update%2013/Taskforce/london%20meeting/new/GAVI%20and%20GFATM%20letter.pdf.
[19] Bruno Marchal, Anna Cavalli, and Guy Kegels, "Global Health Actors Claim To Support Health System Strengthening—Is This Reality or Rhetoric?" *PLoS Medicine* 6, no. 4 (April 28, 2009).
[20] Balabanova D, McKee M, Mills A, Walt G, Haines A. What can global health institutions do to help strengthen health systems in low income countries? In press, 2009.
[21] Pan American Health Organization and World Health Organization. "Essential Public Health Functions as a Strategy for Improving Overall Health Systems Performance: Trends and Challenges since the Public Health in the Americas Initiative." Available at: http://www.who.int/pmnch/topics/health_systems/rhs_20080506/en/index.html; World Health Organization, *World health report 2000: Health systems: improving performance* (Geneva: World Health Organization, 2000); World Health Organization. *Everybody's business: strengthening health systems to improve health outcomes* (Geneva: World Health Organization, 2007); Mark Roberts, William Hsiao, Peter Berman, and Michael Reich, *Getting health reform right: a guide to improving performance and equity* (New York: Oxford University Press, 2004); Anne Mills, Fawzia Rasheed, and Steven Tollman, "Strengthening Health Systems," in Dean Jamison, Joel Breman, Anthony Measham, George Alleyne, Mariam Claeson, David Evand, Prabhat Jha, Anne Mills, and Phillip Musgrove eds.,

Disease Control Priorities in Developing Countries (Washington, DC: World Bank, 2006), 2nd edition, 87-102; Rifat Atun, Nata Menabde, "Health systems and systems thinking," in Richard Cocker, Rifat Atun, and Martin McKee eds., *Health Systems and the Challenge of Communicable Disease* (New York: Open University Press, 2008); William Hsiao, *What Is A Health System? Why Should We Care?* (Cambridge, Massachussetts: Harvard School of Public Health, 2003); Rifat Atun, Thyra de Jongh, Federica Secci, Kelechi Ohiri, and Olusoji Adeyi, "Integration of Targeted Health Interventions into Health Systems: A Conceptual Framework for Analysis" *Health Policy and Planning* (In Press). 2008

[22] Also refer to the Figure 1 in Section 5.

[23] Michael Reich, Keizo Takemi, "G8 and strengthening of health systems: follow-up to the Toyako summit," *The Lancet* 373, no. 9662 (2009): 508–15; Marchal, Cavalli, and Kegels, "Global health actors claim to support health system strengthening—is this reality or rhetoric?"; Dickinson, "Global health initiatives and health systems strengthening: the challenge of providing technical support."

[24] Balabanova, McKee, Mills, Walt, and Haines. "What can global health institutions do to help strengthen health systems in low income countries?"; Michael Reich, Keizo Takemi, Marc Roberts, William Hsiao, "Global action on health systems: a proposal for the Toyako G8 summit," *The Lancet* 371, no. 9615 (2009): 865-9.

[25] Jeremy Hurst, "Reforming health care in seven European nations," *Health Affairs* 10, no. 3 (1991): 7–21; Organisation for Economic C0-operation and Development, *The Reform of Health Care: A Comparative Analysis of Seven OECD Countries.* (Paris: Organisation for Economic Co-operation and Development, 2001).

[26] Andrew Cassels, "Health Sector reform: Some key issues in less developed countries," *Journal of International Development* 7, no. 3 (1995): 329–348; Katja Janovsky, and Andrew Cassels, "Health Policy and Systems Research: Issues, Methods and Priorities," in *Health policy and systems development: An agenda for research* Katja Janovsky (Geneva: World Health Organization, 1996).

[27] Joseph Kutzin, *Health financing reform: a framework for evaluation. Revised working document* (Geneva: World Health Organization Health Systems Development Programme, 1995).

[28] Joseph Kutzin and Barbara McPake, *Methods for Evaluating Effects of Health Reforms. Current Concerns, ARA Paper # 13*, (Geneva: World Health Organization, 1997).

[29] Julio Frenk, "Dimensions of health system reform," *Health Policy* 27, no. 1 (1994): 19–34.

[30] Anne Mills, and Kent Ranson. "The Design of Health Systems." in *International Public Health: Diseases, Programs, Systems, and Policies*, eds. Michael Merson, Robert Black, Anne Mills (Gaithersburg: Aspen Publishers, 2005).

[31] Hsiao, "What Is A Health System? Why Should We Care?"; Roberts, Hsiao, Berman, and Reich, "Getting Health Reform Right."

[32] World Health Organization. *World Health Report 2000: Health systems: improving performance* (Geneva: WHO, 2000).

[33] World Health Organization, *Strengthening health systems to improve health outcomes* (Geneva: WHO, 2007).

[34] World Bank, *Healthy Development: the World Bank strategy for health, nutrition and population results* (Washington, DC: The World Bank, 2007).

[35] Atun R, Menabde N, "Health systems and systems thinking."

[36] William Hsiao, Banafsheh Saidat, "Health Systems: Concepts and Deterministic Models of Performance. A Background Paper prepared for the Workshop on Research Agendas on Global Health Systems," Dec. 3-5, 2008. Available at: http://siteresources.worldbank.org/INTHSD/Resources/376278-1114111154043/1011834-1246449110524/HsiaoSiadatInSearchOfaCommonConceptualFrameworkForHSSDraft62309.pdf.

[37] Milton Roemer, *National Health Systems of the World*. Vol. 2. (Oxford: Oxford University Press, 1993)

[38] European Observatory on Health Systems and Policies, "HiT Country Profiles." Available at: http://www.euro.who.int/observatory/hits/20020525_1.