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Capacity Development as a Research Domain: Frameworks, Approaches, and Analytics

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Abstract

Strengthening national capacity for designing public policies and program interventions is fundamental for achieving development goals. Yet results of capacity strengthening programs have shown mixed results in the last fifty years. Capacity development, as a field of scientific enquiry still lacks a unified framework among development professionals.

Capacity development is defined as the process by which individuals, groups, organizations, institutions, and societies increase their ability to perform core functions, solve problems, define and achieve objectives, and understand and sustainably deal with development issues. The concept of capacity as an integral component of development agendas is not new, yet it has only recently been acknowledged that development plans and goals cannot be achieved without adequate local capacity. Increased attention to the lack of capacity and the absence of relevant institutions has brought to light their importance in the successful design, implementation, and evaluation of development plans, programs, and policies. Despite this now common wisdom, research-based information on *how* to strengthen institutions and institutional capacity in developing countries is severely lacking.

This paper attempts to review the emerging theories, frameworks, approaches, and analytics of capacity development. After developing a rationale for capacity development research, it presents potential research themes. Arguing for a new economics of capacity development, it concludes with some possible impacts of considering capacity strengthening as a research domain.

Key words: Capacity development

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1. Introduction

The idea that capacity is a key ingredient for achieving development objectives is not new. Yet, during the last ten years there has been increased recognition that without adequate local capacity, development plans and goals will not be fully achieved. Increased attention to missing institutions and capacity vacuums within existing institutions brought to light the need for, and the role of individual, organizational and institutional capacities for designing, implementing, and evaluating development plans, programs, and policies. While it is now a common wisdom, at least in the development community, that without adequate capacity, development goals at the global, regional, and national levels cannot be realized, research-based information on how to strengthen capacity in developing countries is severely lacking.

Though relatively new, the role of an enabling environment has also come to be recognized as a major contributor to capacity development at all levels within a country (OECD 2006). Hence factors that influence the framework within which the government, the organization and the civil society interacts with one another also indirectly influence the ability of the institutions and the individuals within those institutions to perform at their best capacity.

Capacity strengthening as a development process faces enormous challenges in developing countries. The limited resources allocated to capacity strengthening programs compete with resources used for achieving the final outcome of development such as the provision of basic services like health, primary and secondary education, and poverty reduction programs (Fukuyama 2004). Due to unfavorable work conditions and low incentives in the national systems, there has been an enormous erosion of capacity in the developing country institutions. For example, the World Bank Africa Governors recently agreed that almost every African country has witnessed systematic erosion in capacity

during the last 30 years and the majority had better capacity during independence than what they possess now (van de Walle 2001).

Capacity Strengthening Defined

Capacity strengthening is defined as the process by which individuals, groups, organizations, institutions and societies increase their abilities to: perform core functions, solve problems, define and achieve objectives; and understand and deal with their developments in a broad context and sustainable manner (UNDP 1998). According to the Organization for European Cooperation and Development (OECD), capacity development is understood as a process of unleashing, strengthening and maintaining of capacity, which goes beyond the conventional technical assistance or cooperation of the past (OECD 2006). It is considered as an endogenous process of change that cannot be imported simply through donors' involvement with development projects in developing countries. Capacity strengthening then would essentially imply countries and institutions taking ownership of their change initiatives in a bid to improve their conditions and achieve their goals.

This broad definition of capacity development is also useful for analyzing capacity challenges faced by institutions - global, national and regional- that focus on designing and implementing agriculture development programs and policies. There has been scattered evidence on the role of capacity strengthening as a strong contributing factor to economic growth, poverty alleviation, and national development (Levy and Kpundeh 2004). However, the process of integrating capacity strengthening as an active ingredient in designing programs and policies, and as a development outcome remains weak in many developing countries.

A major portion of development projects and programs in developing countries continue to be funded by foreign aid. The international aid community has recognized

local capacity strengthening as a key element for development success. In spite of that, the intermediary process of building capacity for developing countries to sustainably implement projects and programs has not been given adequate attention. This missing process may be due to the short-run emphasis of the donors on delivery of services and tangible outcomes of development projects (Fukuyama 2004). The research on the role of capacity strengthening in agricultural development projects and programs has been grossly inadequate to guide the aid-community towards capacity strengthening as a serious investment goal for development. Yet major development approaches, plans, and strategies conceived at the international level crucially depend on adequate national capacity for them to be translated into action on the ground in developing countries.

Capacity Strengthening in Broad Development Context

Over the past five decades global, regional, and national strategies have been developed for reducing poverty, food insecurity, and natural resource degradation. They have accomplished various degrees of success depending on the countries and the context in which they have been implemented. Recently, the Millennium Development Goals (MDG) developed by the United Nations have been promoted as a common platform for achieving improved social development in developing countries (UN 2002). The MDGs identified a broad set of development objectives for developing countries. In addition, the task force of the United Nations Millennium Project has developed a series of ten broad recommendations for the developing countries to adopt in order to achieve the Millennium Development Goals (UN Millennium Project 2005). Specifically, Recommendations 2 and 5 recognize the need for building capacity in developing countries to achieve development objectives. For example, Recommendation 2 calls for scaling up public investments, building capacity, mobilizing domestic resource mobilization and official development assistance and providing a framework for strengthening governance. Recommendation 5 specifically calls for massive training programs to build the capacity of community-based workers in health, education,

agriculture, nutrition, infrastructure, water supply, sanitation, and environmental management and for increasing the expertise in public sector management.

The World Food Summit goal of reducing the number of undernourished people by half by 2015 (FAO 2003) corresponds to the primary goal of the MDG of halving hunger by the year 2015. Regional and sector-specific strategies for achieving increased agricultural sector growth in Africa for example, calls for increased strengthening of institutional and human capacity for agriculture research and development (InterAcademy Council 2004). Furthermore, new development initiatives such as The New Partnership for Africa's Development (NEPAD) and Blair Commission on Africa have also identified lack of capacity as a key development challenge in most African countries (NEPAD 2004; Commission for Africa 2005).

New development challenges such as world trade negotiations that enable developing countries to benefit from the increased opening of global markets and new technological innovations such as biotechnology require adequate capacity at the national level for implementing programs and policies that can convert new global opportunities into economic growth and poverty reduction. Emerging approaches to strengthening capacity for agricultural development in developing countries also call for improving institutional capacity for strengthening the food and agriculture innovation systems (Babu and Sengupta 2004).

The current development challenge is to translate global development goals and policy declarations into policy and program initiatives that identify appropriate actions and investment of resources at the country level. Transforming such actions and investments into impact on the ground will require appropriate human and institutional capacity at various stages from development goals to their outcomes (von Braun et al. 2004). Whatever the development goals, there are five sets of factors that contribute to the translation of these goals into outcomes: policy environment, technological

development, institutional growth and opportunities, infrastructure development, and human resources. While human resource development is a contributing factor in itself for development, it also plays an important role in enabling all other factors identified above (Mosher 1966).

Given the growing recognition that national institutional capacities are fundamental for the success of development programs and policies, IFPRI's capacity strengthening research would generate information for increasing the effectiveness of institutional and capacity strengthening programs in developing countries with particular reference to agricultural innovation and food systems.

The next section gives the rationale for capacity strengthening research. It gives empirical evidence to show that capacity strengthening contributes to overall economic progress within a country. Section three presents the broad paradigms for capacity strengthening research. The following two sections give the various broad conceptual and theoretical frameworks for Capacity Strengthening research. A broad overview of the potential research themes on Capacity strengthening is given in section six. Section seven elaborates on the various approaches to capacity strengthening research. Analytics of capacity strengthening research forms section eight. A discussion of the limitations and the possible impacts of capacity strengthening research form sections nine and ten. Section eleven summarizes the paper and presents the way forward.

2. Rationale for Capacity Strengthening Research

Capacity strengthening research is now being recognized as an important area of research which is contributing to better understanding of the various pathways through which capacity strengthening improves the quality and performance of the various institutions within a country. This document develops a rationale, framework and analytical approaches for capacity strengthening research. Capacity strengthening as a

process of development competes with other development programs and policies for limited resources. Yet, without adequate local capacity the probability of achieving development goals remains slim.

Capacity has been shown to be a major limiting factor in several development programs and initiatives that have failed in the past (Eicher 2004). Capacity, particularly in most of the Sub Saharan African (SSA) countries, remains a missing element in the process of development. Capacity is also identified as a critical element in the process of agricultural development. For example, due to lack of adequate capacity for converting and transferring appropriate technologies to smallholder farmers, many SSA countries have failed to achieve the level of agricultural development that several Asian countries achieved in the 1960s and 1970s (Swaminathan 2003). Lack of institutional capacity has also been identified as a major element in the failure of the structural adjustment policies implemented in many SSA countries as part of the policy reforms in the 1980s and 1990s (Easterly 2005). The failure of institutions that support food and agriculture innovation systems (FAIS) in Africa has also been a result of the capacity erosion in these institutions due to poor working environments and lack of funding for undertaking research and extension programs (Eicher 1989; 1999).

Relating capacity indicators to the development outcomes could provide motivation to better understand the role of capacity in the development process.

Capacity Strengthening and Economic Development

New evidence on the relationship between improved capacity and economic development shows that countries that have improved their capacity to solve problems had higher levels of income and better capacity to govern themselves (Desai et al. 2002). Using the new data that have become available recently we present some analytical underpinnings for relating capacity strengthening to development outcomes. Figures 1

and 2 respectively present the relationship between the number of years of schooling and the tertiary level science enrollment among selected countries in the late 1990s and their per capita income levels. Figure 1 shows that per capita income levels are higher among countries that have invested in educating their population. Figure 2 shows a similar relationship using science enrollment as an indicator of capacity. Figure 2 also distinguishes the countries using a freedom index and shows that countries with better freedom to operate and to exercise freely will take better advantage of such capacity to increase their income levels. While Figures 1 and 2 use rough indicators of capacity levels to understand the relationship of increased capacity and economic development, literature on the role of primary schooling and investment in education on economic development remains inconclusive (Pritchett 2003).

Figure 1: Relation between Mean Years of Schooling and Per Capita Income

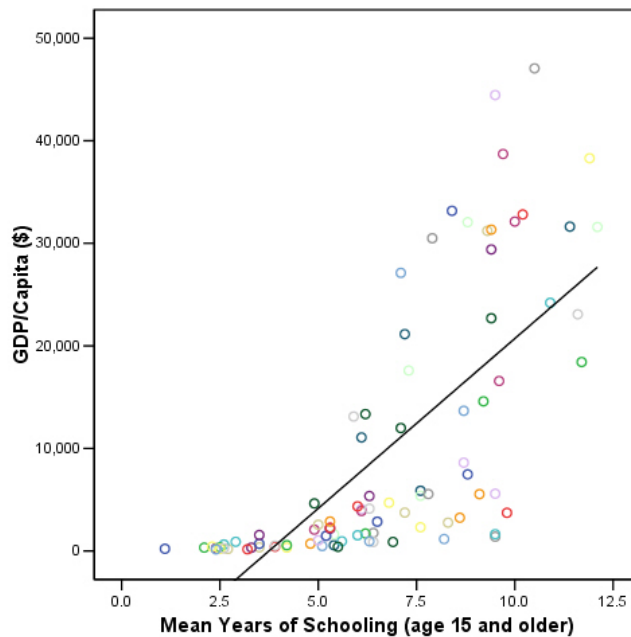
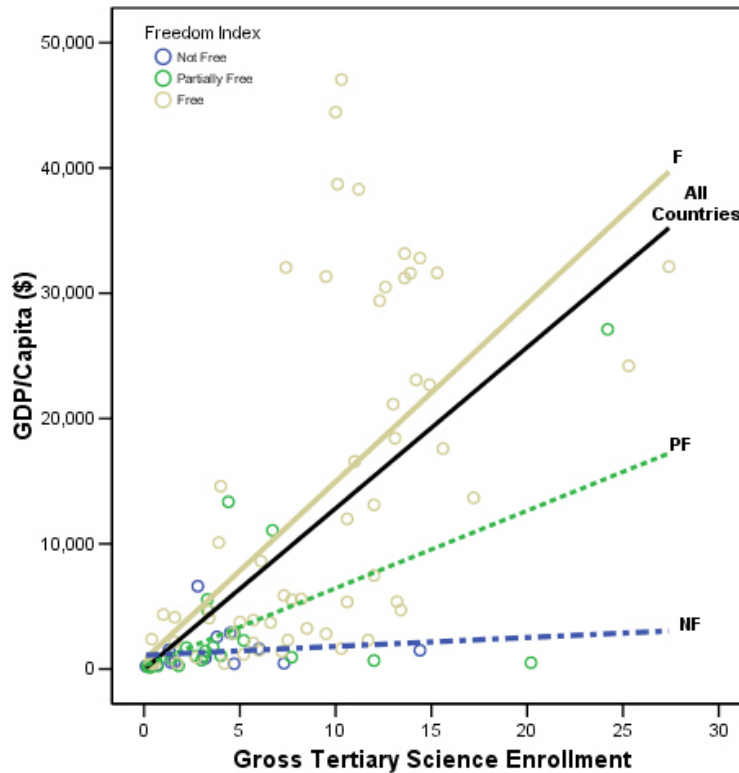


Figure 2: Relation between National Science Enrollment and Per Capita Income



Building state capacity is also an important element to help improve overall capacities within a country. Proper governance of the bureaucracy within the broader political environment influences economic development (Levy and Kpundeh 2004). There is also a recognition that better capacity will result in better governance of the country, indicating improvements in capacity will result in better implementation of programs and policies that reduce poverty and hunger (Kaufman et al. 2003). Figures 3 and 4 relate the capacity indicators to government effectiveness and rule of law respectively. While there is a positive relationship between increased capacity and better governance at least for the selected indicators where the data is available, there is a need for better understanding of the nature and magnitude of the capacity needed to increase governance of development programs and policies that translate the development goals into development outcomes on the ground.

Figure 3: Relationship between Capacity Development and Government Effectiveness

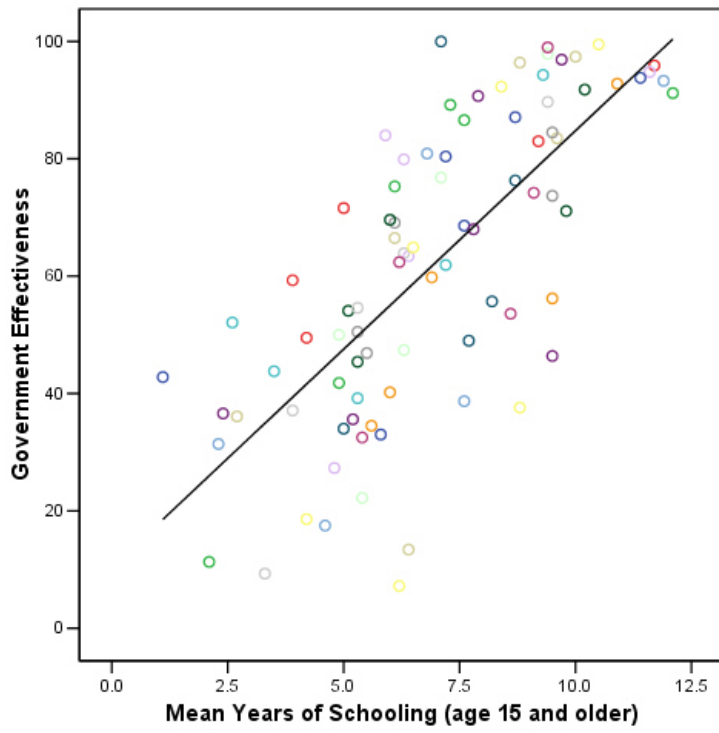
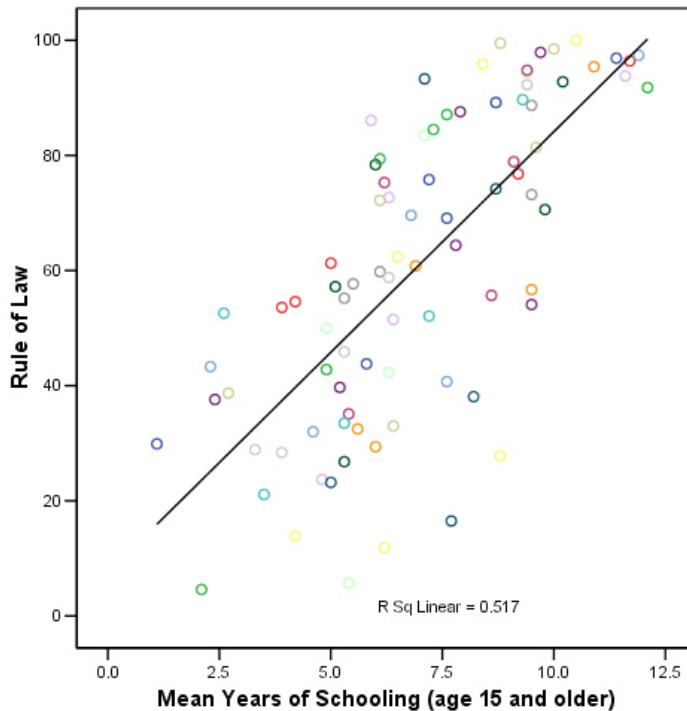
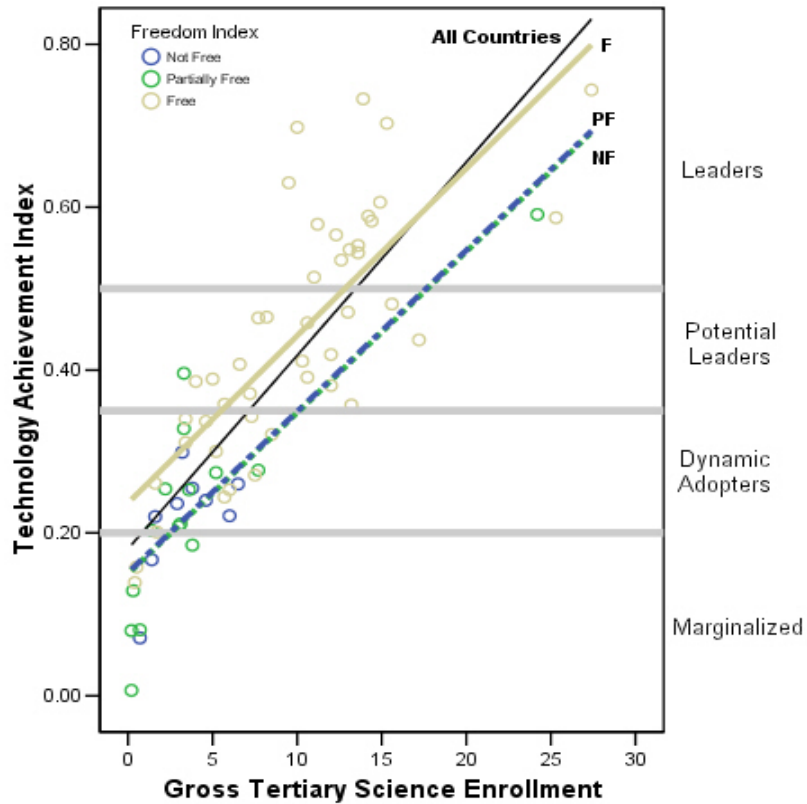


Figure 4: Relationship between Capacity Development and Rule of Law



Technological advancements depend on the quality and quantity of scientific capacity of the national institutions (Mashelkar 2005). Figure 5 relates gross tertiary science enrollment to technology achievement index. While, the positive relationship between science enrollment and technology achievement indexes is not surprising, it reinforces the conventional wisdom that increased investment in human capacity can result in better technological advancements. Although this is true for scientific and technology achievements; such relationship has not been fully understood or analyzed in the development literature. In general, there is a lack of analysis or questioning of the role of increased capacity in explaining growth performance of developing countries (Ul Haque and Khan 1997).

Figure 5: Relationship between Capacity Development and TAI



The foregoing graphs show broad associations of selected indicators of capacity for which cross-country comparative data is available with selected development indicators. Detailed analysis of causality of capacity strengthening on welfare outcomes will require identifying appropriate indicators that truly reflect institutional and human capacity that contributes to better and speedy development processes. Analyzing this nature would be useful in addressing several capacity strengthening issues at the global level: What level of investment is needed for institutional and capacity strengthening to achieve the MDGs? Why do some countries invest more than others on capacity strengthening? How do some countries use their capacities more effectively than others? What complementary factors affect the nature, speed, and magnitude of capacity's contribution to development process?

Global comparisons of contribution of capacity in agricultural innovation systems to agricultural development will require concerted effort to develop consistent and comparable data sets possibly expanding the existing Agricultural Science and Technology Indicators (ASTI 2005). Similar analysis at the sectoral level could throw light on the optimal investment needs for institutional and human capacity strengthening (Archibugi, et. all, 1999).

Capacity Strengthening Challenges at the National Level

Capacity strengthening as a development process faces enormous challenges in developing countries. The limited resources allocated to capacity strengthening programs compete with resources used for achieving the final outcome of development such as the provision of basic services like health, primary and secondary education, and poverty reduction programs. Due to unfavorable work conditions and low incentives in the national systems, there has been an enormous erosion of capacity in the developing country institutions. For example, the World Bank Africa Governors recently agreed that almost every African country has witnessed systematic erosion in capacity during the last 30 years and the majority had better capacity during independence than what they possess now (Van de Walle 2002).

The lower levels of capacity that are inherent in many national institutions in developing countries further aggravate the problem of capacity utilization. Due to the fire-fighting nature of the capacity strengthening projects, systematic planning and utilization of their existing capacity has been poor. There is also an urgent need to assist the countries to effectively transform their existing capacity to provide better outcomes through improved organizational and management skills including leadership quality. Lower levels of capacity combined with ineffective utilization has resulted in limited impact of existing capacities in the national institutions including agricultural innovation systems. Yet, the role of such constraints in inhibiting better institutional capacities and

strategies for overcoming these challenges have not been adequately analyzed and understood in the development process.

Capacity strengthening research is needed at the national level to generate information useful for addressing the above challenges. Some examples of issues that remain unaddressed challenges in the context of agricultural innovation systems include: How to develop self-sustaining national institutions that would effectively promote high excellence in scientific research relevant for poverty reduction? How to retain the existing scientific capacity and put it to optimal use? Given the constant erosion of human capital through external migration, and internal challenges such as capacity loss to the private sector, what policies and incentives should be put in place for sustainable development of local scientific capacity? How to strengthen and support local academic institutions and universities that generate scientific capacity? What approaches are needed to increase the quality of capacity developed by national universities? How the existing but weak institutions could be revived with focused attention on capacity repatriation and investment in local capacity building? What levels of leadership skills are needed to better organize and manage national scientific institutions and how to put them in place quickly? Questions of this nature have not been systematically analysed either in science or in the development literature. Yet, revival of national institutions for agricultural development requires information for decision-making on such crucial issues.

3. Broad Paradigms for Capacity Strengthening Research

Capacity strengthening research as an area that is of interest to a wide variety of development disciplines should necessarily draw from related disciplinary approaches. An inter-disciplinary conceptual framework that helps in unifying the issues, concerns, and challenges relevant to capacity strengthening from these varied approaches is necessary. Yet, practical research issues need to be identified for enabling policy makers

to address the capacity strengthening challenges at the global, national, institutional and individual levels.

In this section we introduce broad paradigms of capacity development that provides an entry point to identifying various approaches of capacity strengthening research from an array of social science disciplines. This is followed by an introduction to capacity strengthening process that helps to provide a conceptual framework for translating development goals into development outcomes.

Paradigms of Capacity Strengthening

The challenge of building institutional and human capacity for development has been approached in the development literature from various perspectives and paradigms. A host of disciplines have approached and contributed to solving the problem of capacity strengthening in developing countries. Still, the available literature on capacity strengthening is scanty partly due to its recent emergence as a legitimate research area. Nevertheless, several authors have approached the problem of capacity development from their own disciplinary perspective. Collecting these perspectives thus provides the opportunity for identifying few broad paradigms for capacity strengthening that help to develop researchable areas and themes to answer several challenging questions regarding developing appropriate capacity that confront policymakers in developing countries. A few of them are identified below.

- Nation/state building (Fukuyama; Levy);
- National capacity for governance (Dia; Grindle);
- Policy and civil society reforms (Ul Haque and Aziz);
- Human capital development (Mashelkar, UNDP);
- Institutional development (Israel; Easterly); and
- Historical perspectives (Eicher; Chang).

Nation/State Building through Capacity Development

The nation building approach to capacity building originates from the premise that maintenance of world order requires state capacity in countries to better organize themselves to play their role in the global arena. The state building approach as summarized by Fukuyama (2004) in his influential book consists of three important phases. The first phase is post conflict reconstruction, which immediately follows war or civil conflict in countries. Examples of this phase include the current efforts of countries like Afghanistan, Somalia, Kosovo, and more recently, Iraq. In this phase, the occupying power or the intervening power invests heavily in developing infrastructure such as roads and telecommunication and builds up security and police forces to provide stability to the post-conflict situation.

The second phase of nation building through capacity development is to create self-sustaining state institutions that will help in establishing mechanisms for provision of public services, particularly through sectoral ministries and institutions. Establishment of new institutions that contribute to agricultural research and development, extension systems, and mechanisms for provision of safety nets to vulnerable populations are some examples of this phase.

The third phase of capacity development for nation building relates to the strengthening of weak state institutions that were established prior to the civil conflict but currently lack adequate capacity. Examples of this phase would include provision of primary education to wider regions of a country, protection of property rights, and strengthening governance institutions (USAID, 2005). While the second phase is needed for graceful exit of the occupying force, the third phase is essential for successful establishment of the local and indigenous political system. The nation building approach to capacity strengthening is relevant for the CGIAR, given the large number of countries

that are emerging from conflict particularly in Sub Saharan Africa (Varma and Winslow 2005).

National Capacity for Governance

Over the past decade or so the development community has given increasing emphasis on better governance of public sector institutions in developing countries (Fukuyama 2004; Isimbabi 2005). They recognize the detrimental role of inefficiencies in the public sector in the form of poor governance and argue for reforms of the government institutions in order to realign their existing capacity to meet development goals (Dia 1993). This could be a starting point towards rejuvenation of growth in least developed countries. The role of state and poor functioning of inefficient public sector are at the core of the analysis of this group of thinkers (Dia 1993; Grindle 1997).

The literature on governance and public sector inefficiencies and its improvement through better institutional capacity of public sector institutions consider improved capacity as an input for better governance (Kernaghan 2004). Good governance in research institutions, and agricultural innovation systems is an essential input for increasing institutional capacity for research in agriculture (Ul Haque and Aziz 1999).

Governance can be modeled as a production function with a past set of factors that influence it with other socio, political, cultural, and historic factors playing their own roles in the current state of governance.

$$X = f(U, X_{t-1}, Z)$$

where, X = the current state of governance; U = capacity to govern; Z = other factors. For the purposes of research on capacity strengthening in the agriculture innovation systems, pertinent questions to ask are: what level of capacity is required for better

organization and management of agriculture innovation systems? Also, what level of capacity will generate appropriate policy strategies for agriculture research and to identify institutional innovations within the research systems?

With globalization, the role of the state has become more diverse. Capacity building for governance is crucial if states are to smoothly perform their roles to minimize the risks and to prevent some of the population to take undue advantages of the opportunities from globalization. The role of the state would then be enhanced to build capacity, set the rules, undertake reforms to better enable citizens to participate in the global economy and attract capital into the country (Rondinelli 2003). Better governance capacity would also ensure better resource mobilization and distribution.

Policy and Civil Society Reforms

Economic and policy reforms have played a critical role in the process of development in many developing countries during the past two decades. Some frequently asked questions in the policy and civil society reforms literature include: What role does local capacity play in enhancing the impact of economic reforms? Why has policy reforms failed in many developing countries? and how can such failures be explained with weak capacity of institutions? A key issue raised in the literature relates to the structural adjustment policies implemented in developing countries that argued for reducing wastage in public sector through retrenching. This cost-cutting policy led to low levels of human capacity in national institutions. Emphasis on cost-cutting at the institutional level along with low quality of human capacity has been cited as one of the reasons for failure of the structural adjustment policies (Ul Haque and Aziz 2005).

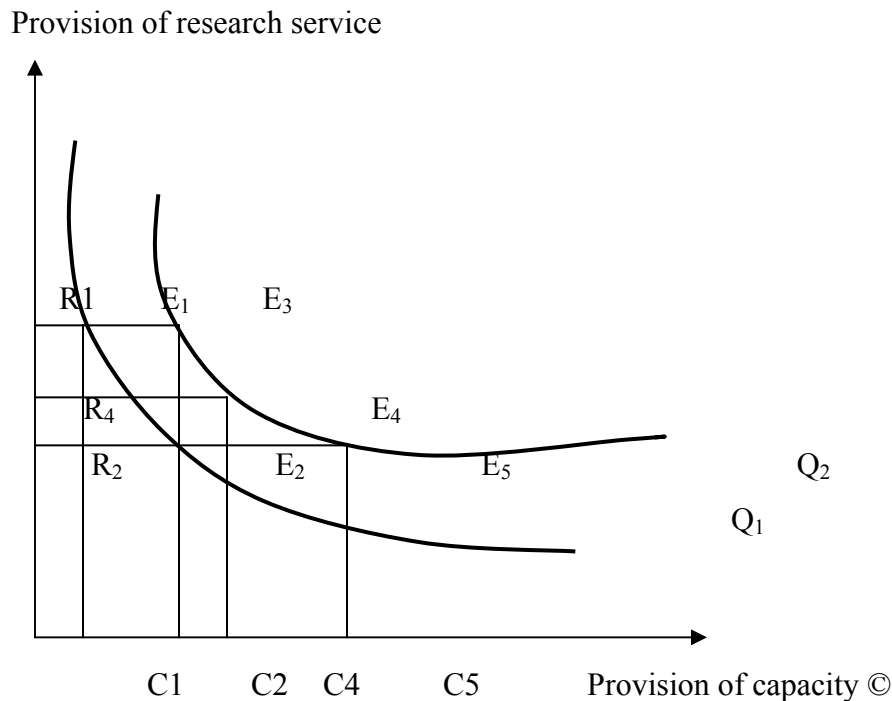
Another set of issues in addressing the reasons for failure of structural adjustment policies, particularly in Sub Saharan Africa relates to the external advisors who were appointed to key positions in ministries and public sector organizations. In many

countries they essentially replaced the existing capacity in these sectors. Such a replacement, while it contributed to immediate attention to the donor requirement of implementing policy adjustments, transferred considerable local capacity to international organizations and disenfranchised the institutions from becoming self sustaining (Kanbur 1995). As a result, there is a reemergence of recognizing the role of institutional and human capacity in policy reforms. A key question that remains to be answered is, how to reform civil society by improving its capacity?

From a theoretical perspective, structural adjustment programs could be considered to bring in two types of inputs to a development program (Fukuyama 2004). This could be in the form of better research services resulting in better capacities. An example of producing an agricultural innovation is given in Figure 6. The provision of resources for agricultural research innovation or agricultural research service is given on the Y axis while provision of resources for capacity strengthening to continue such innovations in the long run by building local capacity is given on the X axis. In general, structural adjustment loans compete for these two sets of inputs and substitute one for the other. In many cases, due to the donor requirement to show immediate results, development projects continue to focus on bringing in external technical assistance to implement the projects. Such projects emphasizes investment in the delivery of service or the outcome directly without much emphasis on provision of local capacity. If Q_1 is a level of output coming out of structural adjustment programs, say an agricultural innovation or a new high yielding variety of a particular crop, then E_1 would represent such a combination of research service and capacity strengthening inputs.

On the other hand if the structural adjustment program provided better emphasis on capacity strengthening for long-term sustainability and less emphasis on external technical assistance for the delivery of outcomes, for the same level of output, the input combination would be represented by the point E_2 .

Figure 6: Policy Reform and Capacity Development



In the same figure the level of output indicated by Q_2 shows an increased level of output compared to Q_1 with different combinations of resource inputs to the provision of final output and capacity strengthening. Assuming increased resources are available that could be used to produce an increased level of agricultural innovation outcome such as at the level of Q_2 , the movement from E_1 to E_3 would represent a combination that emphasizes increased capacity strengthening with the same level of resources allocated to delivery of the final outcome.

For the purposes of identifying appropriate research issues and for identifying optimal combination of local capacity strengthening and external technical assistance under the structural adjustment programs, it is useful to ask which combination of the inputs are more sustainable and contribute to better development outcomes. A researchable hypothesis would be whether the allocation combination E_1 is less sustainable than E_2 . Furthermore, related inquiries could be made to find if development

outcomes would be higher and sustainability of the development process established if we go from E_1 to E_3 or from E_2 to E_4 . Of course, answering such questions would require empirical analysis that would depend on the country and the context-specific nature of capacity strengthening activities.

Human Capital Development

Much of the development literature that address capacity strengthening through human capital building remain quintessentially a neoclassical economics in approach. The essential argument of this approach seems to stem from the poverty and capability postulates of Amartya Sen (1999) in the development literature. Sen argues that higher levels of missing capacity in a society are associated with greater levels of poverty. The same argument could be applied at the institutional level emphasizing that deprivation of capabilities within institutions will inhibit the institutions from functioning effectively. Although the growth literature still lacks successful analysis of the role of human capital in explaining growth performance, particularly in the least developed countries, emerging literature on the role of human capital in economic growth in general provides an entry point to measure the role of capacity in the development process (Ul Haque and Aziz 2005).

Recent approaches by Barro (1997, 1993, 1995) and Pritchett (1996) provide examples of a cross-country analysis to measure the role of human capital in economic growth. Nonetheless the human capital measures that are currently in use remain simplistic partly because they do not encompass the level of human capital employed in the public sector (Ul Hague and Khan 1997). From the perspective of agricultural innovation systems such cross country analysis could provide insights into identifying appropriate levels of research capacity needed for generating agricultural growth. Identifying appropriate indicators of capacity within the agriculture innovations systems and measuring them for long term analysis would be useful. The growth and

development literature, also under the rubric of human capital development, considers the human capital formation and its migration through brain drain (Bhagwati 1976).

Recently, there has also been interest in repatriation of capacity to developing countries. Human capital repatriation by encouraging diasporas of scientists and managers living in western countries to return to their native countries is also proposed as a capacity strengthening strategy. Various approaches providing incentives for repatriation also attracted attention from researchers, particularly in countries that are rebuilding after conflict. Yet, it is not clear under what conditions human capital could be repatriated and how such processes can be sustained in the long run (Mashelkar 2005).

Identifying reasons for and developing appropriate solutions to reduce the human capital flight from developing countries has also been seriously addressed in the development literature (UNDP 1998). From the agriculture innovation systems perspective and for strengthening policy analysis capacity for developing countries, it may be useful to think about institutional incentives and environment that provide opportunities for retaining and maintaining the existing level of capacity. Approaches for attracting additional capacities from the region as well as from outside should also be studied.

Institutional Development and Capacity Strengthening

The structural adjustment programs emphasized reduction of wastage in institutions and policy reforms at the macro and sectoral levels through cost cutting and retrenching. After implementing structural adjustment programs for a decade, the development community woke up to the fact that in least developed countries the public sector institutions have not been developed adequately and capacitated appropriately to absorb and implement policy reforms. The result is the collective wisdom that institutions are critical for development. Although institutions are recognized in the form

of informal rules and norms in institutional economics literature, the development and capacity improvement of the institutions in the public sector has been recognized as key ingredient for the effective functioning of institutions (Easterly 2001; Van De Walle 2001).

From the perspective of developing capacity for agriculture innovation systems it is important to understand the role of capacity in and for organizational design and management of national institutions. Related to institutional development the speed of institutional adjustment to policy reforms and how such adjustments result in capacity enhancement or capacity reduction needs to be understood (Klitgaard 1995). Furthermore, institutional innovation for capacity strengthening with limited allocated resources to national institutions has received increased attention (Grindle 1997).

Historical Perspectives on Capacity Strengthening

Capacity strengthening as an input to development can also be seen from a historical perspective. The historical perspective in analyzing what strategies to build quick capacities for development worked in the past will be highly useful to avoid mistakes. Lessons learned from the past capacity building efforts documented from institutional memory would be highly useful. Capacity strengthening approaches could form a part of these perspectives (Chang 2002).

Capacity strengthening for agricultural development and building agricultural institutions has a history of its own. Carl Eicher (1999) and his associates have been documenting such experiences over the past 40 years. Documenting historical perspectives and lessons learned from institutional strengthening of the agricultural innovation systems would be highly useful for development of strategies, programs, and policies in strengthening national institutions that contribute to agriculture development (Easter et al. 1989).

In addition to the broad perspectives of capacity strengthening given above, several authors have raised the challenge of capacity strengthening from the supply and demand of human capital requirement in a particular country context. There are two sets of ideas that dominate the supply and demand paradigm. One assumes that supply of human capital will create its own demand and argues for generating just enough capacity as can be absorbed in the process of economic development. The supply side argues for increasing the supply of capacity even though there is no apparent sector where they can be absorbed. The buildup of science and technology capacity in India over the past 50 years through advanced Indian Institute of Technology and Indian Institute of Science is an example of such an approach (Mashelkar 2004). Such approach assumes that a certain level of capacity will be lost from the system through external migrations. What remained would meet the local requirements although it may not be of high quality.

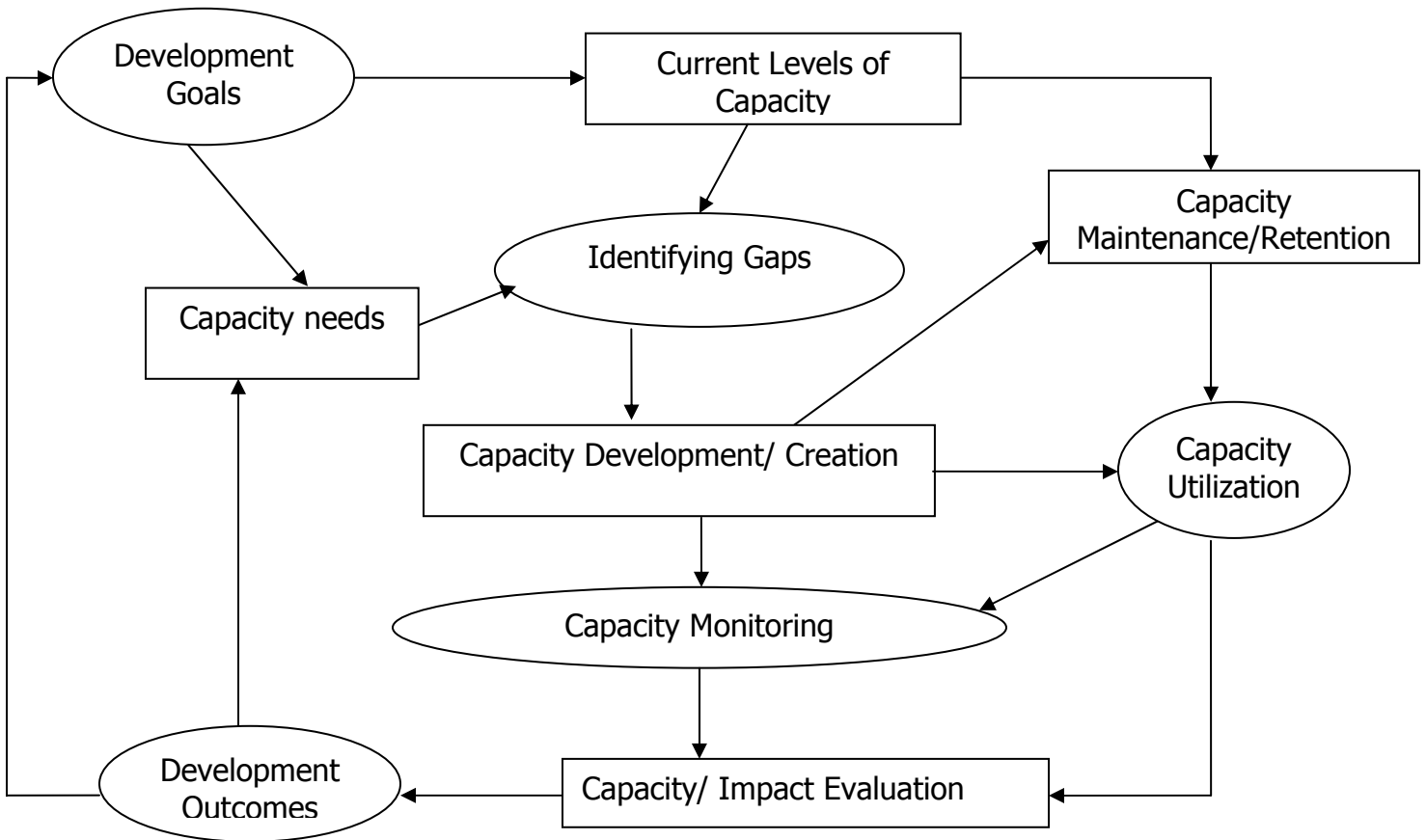
The demand side approach argues that when there is not adequate demand for human capital and there is no absorption of existing qualified capacity into the economy, production of additional capacity takes resources away from other pressing development programs. This approach is typical of several Sub-Saharan African countries wherein the capacity that has been generated has not been effectively utilized within the country context. The demand side approach argues that the high quantity of capacity even if of high quality does not necessarily create its own demand. Yet, there has been increasing demand for capacity when governments face a crisis situation. For example, governments often form “dream teams” inviting high level capacity within and outside of the country that can contribute to development. Such dream teams have been formed in Kenya, Uganda, Ghana, and most recently in Nigeria when new programs and policies were put in place for the revival of the economy (White 2005).

4. Framework for Analyzing Capacity Strengthening Process for Agricultural Development

In order to identify specific research themes that would benefit decision-making for increased capacity and effectiveness of food and agriculture innovation systems in developing countries it is useful to understand the process of capacity strengthening as it relates to achieving development goals. Figure 7 presents the pathways through which capacity strengthening helps in the translation of development goals to development outcomes. Understanding the process of capacity strengthening would help in identifying the research needs.

Once the development goals are set, there is a need for translating these goals into national-level strategies and implementing them through various national and sectoral programs and policies. The task of developing and implementing national strategies requires adequate national and decentralized capacities. Identifying capacity needs through needs assessment studies and gap analysis becomes imperative to guide capacity strengthening programs. Understanding current levels of capacity and the capacity needs for developing and implementing new strategies and programs provides insights into the resource requirements for capacity strengthening.

Figure 7: The Process of Capacity Development



Along with developing new capacities through various capacity strengthening programs, strategic efforts are needed to maintain and retain the existing capacity. The new capacity should be created so that it complements the existing capacity. This process requires an understanding of the incentives and work environment in which the capacities are put to use. Capacity utilization as a managerial and operational skill needs a fuller understanding by the institutional leadership in developing countries. Effective capacity utilization will translate development goals into effective development outcomes on the ground. Monitoring existing capacity and reorganizing its effective use based on various roles individuals play in the development process is essential. Such monitoring

will also be useful in the evaluation of capacity's impact on translation of development goals into development outcomes.

Appropriate methods to undertake capacity strengthening research are not well developed. One place to start is to examine the process described in Figure 7 and combine the paradigms of capacity strengthening described earlier with the processes through which the capacities are created, strengthened, and maintained. Such an approach could provide broad insights into potential research themes and questions that would require research-based information for better and effective use of capacities in the process of development.

Another framework popularized by the United Nations for capacity assessment uses a systems framework wherein the process of capacity development is analyzed at three levels: The Systems Level, The Entity or the Organizational Level and the Individual Level.

The Systems Level

This is the broadest and the highest level within which capacity can be analyzed. Depending on the context (e.g. national, institutional, etc) this would include the entire country or society. For initiatives at the sectoral level it would include only those sectors that are relevant (UNDP 1998). The system factors would include the socio-political factors, the government, the economic/technological and the physical environment.

Analysis at the Systems Level would have to begin with the broad policy environment within which the system is defined. This could be the national level, involving a country, its laws and its institutions. It could also be at the regional, state or local level depending on the capacity strengthening program objective. This Level includes the formal boundaries of the system as defined by its laws, norms and standards within which the capacity strengthening initiative has to function. The value system

governs the relationship of each element within the system. Capacity strengthening initiatives undertaken for the different elements within the broad system depends on key people who are responsible for the management and are accountable to the system.

The Accountability Dimension thus identifies the key stakeholders who are responsible for the design, management, implementation, coordination, monitoring and evaluation of the system. At the national level these would refer to policy makers, key people in ministries, and directors of the NARS. The Systems Level also takes into consideration the various resources, such as, human, financial, and informational, that are available within the particular system before a capacity strengthening activity is initiated. Finally the Process Dimension at this Level refers to the various interrelationships which are forged and help in the capacity development process.

The Entity Level

Also called the organization level, the Entity Level represents a formal organization within the system within which capacity development activities can be performed. This level can be best thought of as an institution like the NARS.

An analysis of capacity at the Entity level has to take into consideration the Mission/ Strategy of the organization. This helps in identifying the existing capacity and also the capacity gaps within the organization (Kay, 2005). An understanding of the culture and standards of the organization as well as the standards of measurement for achievements needs to be undertaken before embarking on capacity strengthening activities within the organization.

The Process Dimension within the Entity Level can refer to both the internal and external processes. Those that govern interactions within the various divisions as well as

those the organization has with rest of the system should be looked into for a better understanding of the position of the organization within the System.

The Resource Dimension is an analysis of the existing resources which are at the disposal of the organization. Current available human, financial and informational resources determine existing capacity. Whether capacity strengthening would involve bringing in external resources or train and develop internally available capacities depend on the outcome objectives of capacity strengthening projects. Failure of structural adjustment programs to develop local capacities brings out clearly the importance of this dimension of capacity strengthening.

The Infrastructure Dimension is gaining importance in recent times as it determines the physical and other forms of assets which are available. This determines the level of capacity that an organization can achieve without investing in building additional infrastructure.

The Individual Level

This is the major dimension of capacity strengthening and most of the prior activities in the capacity strengthening literature have been concentrated on this level without assessments of the other dimensions. Capacity assessments at this level are designed according to the individual's function within the organization. This level also involves people who are not directly involved in the organization but are beneficiaries from the various activities of the organization. Assessment of capacity at this level depends on the individual's role and assignments within this framework. The skill assessment of the individual and the requirement for the job enables an assessment of the "capacity gap." This gap can then be addressed through training and development plans.

Entry Points for Capacity Development Programs

Most capacity development efforts focus on the organizational level as the entry point for capacity development programs and activities. However, to be successful, any capacity strengthening program should address all the three levels. Organizations require an enabling environment to perform the additional responsibilities which come with enhanced capacities. Also, capacity building done at the individual level requires enabling infrastructure at the organization level and enabling policy environment at the systems level to be successful. Hence we can think of starting a capacity strengthening program focusing on the individual and then zooming out to perform related capacity development at the organization and the systems level. Another strategy could be to first develop favorable environment through policy reforms and then create capacities at the subsequent levels to be able to make use of the favorable policy environment (UNDP 1998).

5. Theoretical Frameworks for Capacity Strengthening Research

Various theoretical frameworks that provide opportunities to develop conceptual thinking for a theory of capacity strengthening can be adopted from the available literature. We briefly describe some of these theoretical underpinnings for capacity strengthening research.

- Theory of optimal capacity and capacity threshold
- Theory of capacity sequencing
- Systems theory of capacity utilization
- Networking/social learning theory of capacity development
- Theory of capacity destruction and deprivation

Theory of Optimal Capacity and Capacity Threshold

The theory of optimal capacity relates to the levels and dimensions of capacity development that is required for achieving a pre-specified level of development objectives. It also raises issues related to the levels at which capacity should be built to achieve the maximum effectiveness and to avoid the crowding out even within the locally produced capacity. The capacity strengthening programs, particularly those funded by aid agencies, suffer from the curse of duplication. Developing capacity optimally to avoid duplication efforts requires an understanding of various donor agencies and their cooperation to invest optimally in a specific set of national institutions. This could result in the optimal level of capacity strengthening that maximizes its benefits towards development goals and reduces the cost of capacity strengthening investment at the national level.

Relative to the theory of optimal capacity is the theory of capacity threshold. Given the recent recognition of non-linearities and the thresholds for development (Xiabo et al. 2004). The theory of capacity thresholds raises the question, “Is there a minimum capacity threshold necessary for development projects to be effective?” If a capacity threshold exists how one does identify such a threshold that is necessary for realizing project outcomes? Given that a critical mass of capacity may be required to make the necessary impact on the ground what approaches and strategies should be followed when the capacity below the thresholds levels may not produce positive results?

Theory of Capacity Sequencing

The theory of capacity sequencing relates to the appropriate entry point for formal capacity strengthening efforts in the process of development. It recognizes that capacity strengthening should encompass a broader dimension to be fully effective that includes, understanding the relationships among the subsystems of capacity development and identifying various stages in which capacity should be built and appropriately sequenced for effective utilization in the development process.

Systems Theory of Capacity Strengthening

In order to compare various political and administrative systems that exist in developing countries a systems theory perspective for capacity strengthening research is proposed. A systems theory approach recognizes the interactions within and outside of the systems that enhance the development of capacity and its utilization. It also recognizes the interactions of the stakeholders, and interactions of the system with the stakeholders within a particular process. The nature of capacity impact in various systems and performance indicators could differ depending on the system under which the capacity utilization is studied. Yet, it is clear that a system that is open and allows freedom of choice and expression of the researchers would function better compared to a closed system and does not allow freedom of expression.

Theory of Networks and Social Learning

Increased development of networks through which capacity strengthening can be done in developing countries allow opportunities for use of the theory of social learning in conducting capacity strengthening research (Eade, 1997). The role of social learning in developing inherent human capacity between and within particular networks could be studied. Using case studies, we could derive important lessons for determining the preconditions that would promote social learning through networks.

Theory of Capacity Destruction/Deprivation

The theory of capacity destruction/deprivation recognizes the influence of external factors that tend to systematically deprive capacity within the national agricultural systems. Imposition of external ideology in project implementation erodes the local capacity of the national agricultural systems. Policies and programs that reduce capacity destruction while promoting harmony between the external ideas and indigenous thought processes should be identified for stopping “crowding out” capacity through development processes.

The available literature on capacity strengthening research cuts across many social science disciplines. Yet, the development of a unified theoretical framework remains at a nascent stage. Capacity strengthening activities carried out in different parts of the world may have different impacts and outcomes due to differing levels of inherent capacity present within the country. Thus there might be a pre-specified level of inherent capacity which ensures the maximum effectiveness of externally implemented capacity strengthening activity and avoids crowding out of locally produced capacity. A proper sequencing of capacity strengthening efforts will ensure that the capacity built does not stagnate due to constraints in policy environment or does not destroy the progress achieved thus far by local efforts.

The exact nature and content of a training activity could be borrowed from the theory of adult learning which is sensitive to the motivation and characteristics of the participants in the learning process. The training process has to be interactive, reflective and dialogue oriented so that it leads to transformation in the abilities of the trained individuals to undertake additional responsibilities.

6. Potential Research Themes on Capacity Strengthening

Based on the limited literature on capacity strengthening research and the emerging paradigms and combining them with the process of capacity strengthening for reaching development goals, it is possible to identify potential research themes. There is a need for relating capacity strengthening as a development activity to the economics of development.

The New Economics of Capacity Strengthening

Capacity strengthening is a development activity that requires resources. If considered as an economic activity, the costs involved in building human capacity and institutions and the benefits from such activities should be documented for analyzing the

economics of capacity strengthening (ECDPM 2005). A research approach to the new economics of capacity development would require systematic understanding of the allocations of resources to capacity strengthening activities to various sectors that contribute to improved functioning of the public sector institutions and tracing the benefits of increased capacity of the global, national and local institutions in the process of better governance and better development outcomes (ECDPM 2003). Analysis of costs of improving capacities of food and agriculture innovation systems (FAIS) in relation to the benefits from the development of new research innovation and their dissemination needs immediate attention (Archibuigi et al. 1999). Furthermore, such an economic approach to understanding the impact of capacity strengthening would contribute to the decision-making on appropriate investments in capacity strengthening and institutional development in the future (Horton et al. 2003).

Institutional Capacity Building for Agricultural Development

Studying the approaches to institutional capacity building in agricultural development requires special attention. During the past 50 years, agricultural institutions that contribute to research and development, extension, and building of farmers' organizations have been strengthened (Eicher 2005). Yet, there is limited information on the pros and cons of the various approaches used in strengthening agricultural institutions. A major research area would be to identify cost and time effective approaches for strengthening capacity of these institutions (Harris et al. 1997; Pitcoff 2004). Issues related to long-term as well as short-term approaches to human capacity strengthening should be evaluated for their contribution to institutional and development outcomes (Lele 1989; Land 2000).

Capacity Strengthening for Food System Efficiency

Recently, increasing the efficiency of global food systems, food systems governance, and managing innovations within the food system have been considered

critical for reducing hunger and malnutrition (Gervais 2004). Capacity strengthening at the national level for better governance of food systems and institutional innovation of food systems would require a supply chain approach. Yet, research-based information for appropriate methods for strengthening state, market, and civil society organizations for better governance of the food system has been few and far-between. Fostering scientific and institutional innovation and technology for the benefit of poor people in developing countries requires an industrial organization approach to national food systems (Connor et al. 1988). A recently concluded meeting of the association of agricultural research institutions in Asia has identified the supply chain approach as one of the efficient ways of identifying capacity needs and strengthening capacity throughout the agricultural innovation system (Best et al. 2005). Major research issues related to the food systems approach would require setting priorities along the supply chains for capacity strengthening and identifying appropriate levels of capacity at each stage in order to fill gaps and create new set of skills that would contribute to efficient functioning of national food systems.

Capacity Strengthening for Organization and Management of the NARS

The role of capacity strengthening in organization and management of national agricultural research systems requires special research attention (ISNAR 2005). Using the insights from organizational theory, it is possible to look at the key requirements of capacity for efficient functioning of food and agriculture innovation systems (Edquist 1997). Capacity strengthening activities among these various agencies would facilitate them to come to a consensus regarding their common goals and objectives and formulate appropriate strategies to take collective action.

Studying Technical Assistance/Cooperation for Capacity Strengthening

The deployment of technical cooperation and technical assistance as an approach to capacity filling within development programs and projects has come under serious

criticisms (Kanbur 1995). Technical assistance provided through externally funded development programs have not only failed to develop sustainable capacity but have eroded existing capacity due to the presence of external advisors and technical assistance personnel (Fukuyama 2004). Yet, it is not clear what appropriate role technical assistance should play in developing new agriculture programs and policies, implement programs, and evaluating the programs, particularly when the institutional structures and capacity within the institutions are weak in developing countries. There has also been a dependency syndrome created due to the continuous presence of technical assistance in several institutions including food and agriculture innovation systems (FAIS). Several national agricultural research systems are partly funded through external funding. Such funding comes with its own technical personnel who work parallel to national scientists often with detrimental capacity outcomes. While Berg (1993) raised these issues in the early 1990s, challenges of managing technical assistance has received very little research attention. It would be worthwhile to examine on a case by case basis how technical assistance contributes to long run sustainability of project benefits as well as to the creation of adequate capacity for future implementation of similar programs within national institutions.

Does Foreign Aid Help Strengthen National Capacity?

Foreign aid through bilateral and multilateral donor agencies has been under scrutiny for their role in strengthening and reforming institutions (Shirley 2004). While there is some evidence that foreign aid does not structurally influence the institutional performance in developing countries it is not clear to what extent external resources channeled through development programs and projects influence strengthening of the capacity within the institutions (Easterly 2002). The role donor resources play in enabling and sustaining the institutional capacity within the food and agriculture innovation systems requires further investigation (Wane 2004).

Effectiveness of foreign aid for strengthening national capacity has been an area donors have tried hard to grapple with. The Paris declaration of 2005 marks the latest in donor approach to understanding the relationship between capacity strengthening and foreign aid. It is now understood that for foreign aid to be effective in strengthening in-country capacities, there is a need to develop local ownership for development projects. Leadership roles would be taken by the country with donors providing only tactical support. This is considerably different from the previous approaches adopted by the international community at various international forums.

In the Monterrey conference in 2002 technical assistance and productive capacity building was linked to interactions between the government and the private sector in the form of public-private initiatives. It was assumed that the capacity strengthening programs can be financed through foreign aid and would put countries at a higher learning curve post the capacity strengthening programs. Hence stress was on sustained lending by international financial organizations like the IFC and IMF. The high level forum on Harmonization in Rome in 2003 still has the remnants of the top-down donor mentality, but with the realization that development cannot be imposed on countries and they would have to desire to build their capacities before any such programs are thrust on them. The forum highlights the importance of dialogue between the donors and partner country governments to come upon principles of good practice which are suitable in the contexts.

The 2004 Marrakech Roundtable on strengthening country capacities to manage for results places greater emphasis on good governance for better public sector management, the delivery of services and for achievements of results on the ground. This led to the introduction of results oriented approaches with changes in the incentives and systems at the country level as part of the long-term reform agenda (IDA 2004).

Capacity for Institutional Change and Innovation Systems

Institutional Change and Innovation Systems in agriculture requires capacity at various levels starting from national institutions of agriculture to farmers organizations. Innovations occur at all stages of agriculture research and extension systems (Rivera et al. 2000). Yet, understanding the role of capacity strengthening both at the institutional and individual levels for effective institutional change and innovations could be an important element of this research program. Organization and management of research and academic institutions would require improving managerial, organizational, public relations and leadership skills of the managers and researchers of food and agriculture innovation systems (FAIS). Capacity strengthening research could generate information for addressing the above issues in close collaboration with other research programs in the ISNAR division. Such research questions will be jointly raised with the institutional change and innovation systems program within the ISNAR division and will complement the research efforts of that program. Some of the key research questions are identified here:

- Understanding the capacity needs for and facilitating the innovation process in food and agriculture systems for reducing poverty.
- Develop the capacity to assess the effectiveness of programs and policies that aim to reduce poverty and
- Determine the capacity needs of institutions and individuals for analyzing the impacts of agricultural innovations on poverty and food security.

Decentralization and Local Use of Capacity

Decentralization of sectoral responsibilities as well as development of implementation plans and programs is increasingly an accepted way of achieving development goals. However, decentralization, even with adequate resources allocated at the local levels, cannot effectively deliver unless adequate capacities are built at the decentralized levels. Furthermore, effective use of the capacity at the decentralized level

remains a challenge for implementation and evaluation of development programs (Babu 2003). Countries that have decentralized their budget allocation process as well as their fiscal responsibilities continue to face the challenge of weak institutions at the local levels and poor capacity to implement programs and projects (Kaarhus 2004; Gervais 2004). Optimal level of capacity required at the local level and the mechanisms through which the existing capacity could be mobilized to effectively contribute to development is still not clear. The challenge to effectively use existing capacity at the decentralized level pervades several sectors of the economy such as agriculture, rural development, health, education, and local administration.

Information and Communication Technology for Capacity Strengthening

Increased availability of information and communication technology to developing countries brings them to the forefront of information society (Desai et al. 2002). Effective use of information technology for development programs and policies requires a better understanding of the capacity strengthening requirements for implementing these technologies. National institutions connected to global information and knowledge bases through communication technologies tend to operate with better efficiency. Not only vast amount of information is available for decision-making, it is also available in a timely manner to these institutions (Korac-Kakabadse Nada 2000).

The extent to which decentralized institutions are connected through communication technology, they are able to make better use of information. The role of virtual libraries and knowledge sharing systems in strengthening the capacities at various levels of food and agriculture innovation systems need to be studied. Furthermore, new innovations in capacity strengthening, such as distance education and the role of communication technology in improving the skills and operational capacity of the existing human resources has not been adequately analyzed (Peterson 1998). Such

information would be of importance in deciding the level of investment in information and communication technologies in the food and agriculture innovation systems.

Governance and Capacity Development

The quality of governance and the capacity to organize and manage public sector institutions are closely related. Yet, strengthening capacity for better governance in public sector institutions including national agricultural research systems has received increased attention only after the dismal performance of structural adjustment programs (Isimbabi 2005). It is increasingly suggested that improved capacity for public administration is an essential input in producing better governance (Kernaghan 2004; Grindle 1997). However, there is very little analysis relating capacity strengthening to governance and the extent to which capacity strengthening contributes to better governance outcomes. Further, identifying optimal levels of strengthening various spheres of capacity in the public sector organizations that contribute better governance requires analyzing various context-specific case studies (Levy 2002; Mafunisa 2004). How will one build capacity for better governance and how better governance in turn contributes to capacity development needs to be fully understood.

Science Policy Process and Capacity Strengthening

Successful development of food and agriculture innovation systems (FAIS) requires appropriate policies and programs on science and technology. Developing capacity for science policy by understanding the policy processes involved in the development of science and technology policies is essential (InterAcademy Council 2004). There is a great need for strengthening various capacities in the policy process that will effectively contribute to better science policy outcomes (Mashelkar 2005). Research on the relationship between agricultural science policy development and strengthening capacity in the policy process will shed light on enabling better policy outcomes.

Addressing the capacity challenges of the emerging issues identified by the ISNAR research program on agricultural science and technology policy, the following key research policies would be beneficial.

- Develop capacity for analyzing and implementing policies for pro-poor agricultural innovation
- The various kinds of skill-development trainings that would enable better resource mobilization for sustainable financing and delivery of agricultural research and extension activities
- Capacity for priority setting and impact evaluation (*ex-post* and *ex-ante*) of prospective food and agriculture innovations and technologies

In the foregoing section various potential research themes have been identified based on the existing literature on capacity strengthening for development. These research themes could be streamlined and defined in order to set priorities for undertaking specific research studies. Broad approaches to capacity strengthening research that could be used to address the issues raised above are identified in the next section.

7. Approaches to Capacity Strengthening Research

Methods and approaches to conduct research on capacity strengthening issues remain underdeveloped. Yet, the literature is replete with papers where authors from various disciplines of social sciences attempt to study capacity strengthening and its role in international development from various context specific approaches. These approaches and methods could be grouped into the following broad categories:

- Qualitative approach – participatory rural appraisal, post focus group discussions, and interviews;

- Quantitative approach – cross country analysis based on empirical data collected during learning events;
- Case study methods – documenting best practices and lessons;
- Narratives approach – social learning and learning through field investigations; and
- Action research for capacity strengthening.
- Results Oriented Approach towards Capacity Development

Qualitative Approach for Capacity Strengthening Research

Several qualitative approaches have been borrowed from social sciences in order to generate research based information at various stages of the capacity development process. Assessing the specific needs for capacity strengthening in various national institutions relied heavily on participatory approaches. Such participatory assessments involve group discussions and the use of structured qualitative assessment using questionnaires for identifying capacity needs of organizations and individuals (Angeles & Gurstein 2000). The qualitative approach also involves conducting strategic interviews with key people at various levels to understand where the capacity gap exists (Box 1999). Qualitative interviews are also useful to identify the thematic needs to be imparted through the learning programs (Phaik-Choo 1999). Group discussions have been effectively used also for evaluation of the training programs to understand how training and learning activities have contributed to skills improvement and filling of gaps identified in the needs assessment activities (DFID 1995).

Quantitative Approach for Capacity Strengthening Research

While there is limited information on how various quantitative methods could be applied for understanding the role of capacity strengthening in the process of development, quantitative studies on the role of human capital in economic development provide opportunities for applying cross country analysis. Using the regression method it

is possible to study the specific contribution of capacities in various sectors to economic growth and development (ECON 2002). While collecting data from agricultural innovation systems on specific indicators and measures of capacity could contribute to the study of effectiveness of this organization through capacity strengthening, development of such indicators of capacity strengthening and appropriate measures of success remain rudimentary. It would be useful to expand the data collected as part of Agriculture Science and Technology Indicators (ASTI) project to collect indicators related to specific skills and capacities and the training activities undertaken by the institutions to strengthen their staff skills and to relate such indicators to the overall success of the agriculture innovation system (Narula, 2004).

CSP has undertaken assessment of capacity needs in Ghana and Vietnam. In 2002, at the request of the World Bank-Vietnam, CSP assessed the policy analysis capacity for the Ministry of Agricultural and Rural Development and a consortium of donors. As a follow-up to the assessment, a multi-donor proposal for long-term capacity strengthening in the Vietnam Ministry of Agriculture and Development was developed.

Case Study Methods

Case study methods have been successfully applied in political economy literature to understand the commonalities between the reform processes in various countries in a particular sector and how such common approaches result in varying outcomes depending on the process by which policy reforms were implemented (Hirschmann 1993). Evaluating capacity strengthening programs provide opportunity to employ case study approaches on a country by country basis in order to learn from the approaches to capacity strengthening, the design, delivery, and implementation and to document best practices in capacity strengthening (Odhiambo 2000).

Narratives Approach

Recently, in order to assess the impact of projects and programs, information based on anecdotal evidence have been assembled in the form of the narratives approach. The approach, derived from social discourse theory, involves interaction with various stakeholders at various levels of project implementation (Roe 1994). The narrative approach will also provide opportunities for understanding the social network process for learning and capacity strengthening.

Action Research

The capacity strengthening outreach activities described in the next section call for conducting capacity strengthening research activities as part of IFPRI's outreach. Reaching out to potential participants who will use IFPRI research and methods through specific capacity strengthening activities provides opportunities for action research. Such activities allow us to learn from the participants of the program and interacting with them on a regular basis. Implementation of research projects by IFPRI's research divisions also provide avenues for conducting capacity strengthening research by becoming part of the research projects. Several country level programs in the past have provided opportunities for such approaches. Action research will pull in various methods and approaches for conducting capacity strengthening research as described above (Schmidt 1991).

Results Oriented Approach to Capacity Development and Change

The results oriented approach in capacity development and change (ROACH) works on the organization level and focuses on outputs as a relevant analytical vantage point. The approach views organizations as open systems and takes a "functional-rational" and "political" perspective on how capacity is to be shaped and how it changes. Such perspective seeks to understand what functions the organization is scheduled to perform to form a basis of capacity development. Since ownership to achieve the goals

rests with the organization, capacity development and change is a domestic matter and is based on “possible” rather than “desirable” capacity (Boesen and Therkildsen, 2005).

Capacity development from the ROACH approach identifies the “outsiders” and “insiders” in organizational capacity development and tries to determine if and how donors as outsiders can support and encourage capacity development in organizations (Boesen and Therkildsen, 2005). Leadership is a key role in organizational capacity development. Identifying with the top management in an organization, this factor could lead to successful outcomes. In cases of poor institutional situations, leadership would play an important role to effectively use the existing capacity for successful outcomes. Another important element in this approach is the role of incentives and rewards. This is linked to staff motivation in terms of tangible and intangible benefits. Hence apart from salaries and bonuses, opportunities for personal growth and satisfaction also plays an important role.

This approach thus combines traditional elements of capacity strengthening with newer ideas of “ownership”, “possible capacity” and how best can a donor enhance capacity within an organization without making the process outcomes reflecting donor goals and objectives.

8. Analytics for Capacity Strengthening Research

For a research program to be useful in contributing to improved effectiveness of national institutions, it should address practical challenges faced by policy makers in strengthening institutional and human capacity. Some questions frequently raised among those involved in capacity strengthening decision-making include: what kind of capacity should be strengthened and in which institutions such capacities will bring maximum benefit. An associated question is how to develop such capacity in a time and cost effective manner.

Such broad questions apply to any sector or institution in a developing country. Yet, these questions cannot be fully answered unless specific research questions are identified based on country and context specific situations. For example, if one considers the role of capacity in meeting the Millennium Development Goals, an ideal approach would be to trace the capacity strengthening challenges along the path from setting the goals at the global level to reaching development outcomes at the grassroots level. Decision-makers have to go through the process of goal setting at the global level to initiating national strategies at the country levels. This process will result in specific programs and policies for implementation through identified sectors and institutions.

In translating development goals set by international treaties and global agreements into national level strategies decision-makers could ask, “Does enough capacity exist to meet the development challenge?” If there exists inadequate capacity in national institutions, then the additional capacity needs should be identified. Once the national institutions are identified and programs and policies are assigned for implementing public action towards the development goal, it is important to ask at the institutional level, “At which level is capacity development effective to meet the development goals?” At the implementation stage, it is important to evaluate the impact of the programs and policies for their intended outcomes. At this stage, it is important to identify capacity gaps for ground level implementation of the programs and policies and identify environmental factors that contribute to a successful utilization of human capacity to reach development goals.

The analytics involved to generate information for solving capacity strengthening problems will vary depending on the broad goals at the national level, the institutional context, and the state of development in which capacity is needed. A specific set of analytical questions that emerge from the discussion on various research paradigms, capacity strengthening processes, and research themes could be categorized based on the users of research information, national systems of decision-making, relationships

between the institutions within the national systems, the individual, and the international aid agencies. Such categorization is also complemented by the various stages of capacity strengthening process which involves assessment of capacity needs, analysis of how to strengthen capacities, best approaches for making the need and impact orientation and sustainability of capacity strengthening approaches.

Assessing Capacity Strengthening Needs in National Systems

In developing information for effective capacity strengthening of the national systems, the first set of research issues relate to assessing the capacity needs and identifying gaps in key capacity areas. Capacity gaps exist either due to inadequate capacity development or due to the erosion of capacity over time in the existing institutions. In either case, it is important to recognize the evolution of capacity gaps over time and the causal factors associated with such capacity gaps. On the national level it is important to assess the principal barriers to capacity development which may relate to budget reallocations, poor organization and management of the national institutions, unproductive work environment, and poor incentives for translating skills into productive outcomes. Factors that influence enhanced capacity utilization at the national levels should be identified and fostered. Given a particular institution such as a national agriculture research institute, it is important to identify the key capacity challenges to meet development objectives and to recognize the levels at which capacities should be developed in the short and long run.

Implementing Capacity Strengthening Programs

Another broad set of research issues for which information is needed at the national level relates to how to implement capacity strengthening programs. Given the ongoing economic and civil service reforms in many countries, it becomes essential to align the capacity strengthening process to the development goals and objectives. A frequently raised challenge at the national level systems is how to develop a core mass of

research and policy capacity at national institutions that will be self-sustaining in answering the development challenges faced by the country. Steering the existing policy analysis and research capacity to provide research-based information to the bureaucracy that makes decisions is important.

At the national level there exists tension between the local capacities and the external technical assistants that work side-by-side. A key issue to be addressed is the level of influence of capacity transfer from technical assistance component to the local counterparts during the period of project implementation. Undertaking such institutional capacity transfer smoothly continues to present challenges for development projects. Furthermore, a cautious approach to capacity strengthening at the national level by avoiding excessive dependency on external assistance that tends to erode local capacity in the long run is important.

At the national level it is also important to recognize the existence of regional and national networks for capacity development. To the extent the human capital developed at the local level participates in the regional networks, they can bring back the experiences of the region to bear on the local decision-making systems. Since many countries are dependent on external aid for investing in development programs and projects and that such aid comes with conditionalities of donors it is useful to recognize how such conditionalities can be positively directed to create local capacity (Babu 1997). Finally, identifying policies and approaches that will cost and time effectively increase the capacity for development should be a priority research area.

Institutional Development Through Capacity Strengthening

Building stable institutions and preventing erosion of human capacity particularly in the national agriculture research systems remains a major challenge. Challenges in capacity development, maintenance, retention, utilization and monitoring of capacity

confront every institution in developing countries. Cultural norms and social choices play an important role in capacity creation, maintenance, and retention in developing countries. Information on appropriate incentives to retain and attract new capacity needs to be generated through the studying of stable agricultural innovation systems. Increasing the quality of academic institutions, research systems and universities is important to increase the quality of public sector capacity and its effective use in development. Yet, interactions between the internal norms and values and the external approaches to institutional reforms have not been adequately analyzed.

Given the increasing role of public/private partnerships in institutional strengthening identifying specific contributions of private and public components of such partnerships to capacity strengthening is important. Factors that influence creation of self-sustaining indigenous institutions and those that improve institutional quality in the long run should be studied. Identifying appropriate indicators of institutional quality and measuring them to compare improvements in such measures will be useful for developing best practices for institutional development through capacity strengthening.

Analytics for Developing a Solid Human Capacity Base

Careful attention needs to be paid to develop a pool of trained manpower within national institutions to ensure successful outcomes in developing a strong agricultural research base in developing countries. Several research issues remain unaddressed regarding best approaches to strengthen the human capital base in institutions. Capacity erosion comes in the form of researchers moving out from national systems to other regional and international organizations within the country or to the private sector. Specific forms of economic and policy reforms can increase incentives for proper use of human skills for policy and institutional change. The best approach to attract human capital to national institutions is by providing individual incentives through price competition. Often distortive incentives prevent mobility and freedom of human capital

inhibiting the retention and productive employment of individual human capacities in the public sector.

Very little analytical study exist in understanding socio, economic, and political factors that determine increased retention of existing capacity and better utilization of the skills created and appropriate ways of monitoring the capacity's contribution to institutional goals needs to be devised. Effective measures of human capital should be developed by incorporating specialized research and analytical skills.

The various issues involved in building sustaining capacities within national systems in developing countries are still in a trial and testing phase. Capacity strengthening for ensuring a well-functioning institution requires detailed attention towards the analytics and research issues discussed above. However, the approach and results may vary between countries not only because of differences in the state of the existing institutions (political, environmental, research, etc), but also on several inherent limitations and challenges to implementing capacity strengthening activities in countries.

9. Limitations to Capacity Strengthening Research and Outreach Activities

Capacity strengthening research may face challenges in its conceptualization and implementation phase. With regards to the research agenda, availability and accessibility to comparable cross-sectional data and time series data will be a constraint. The ability to locate and engage previous participants for answering surveys and interviewing will be a challenge. With regards to outreach activities there are challenges in adapting to country customs. There may also be difficulties in identifying key institutions to collaborate with and to develop as Centers of Excellence. Other challenges include limited information and communication infrastructure in partner countries for disseminating information and courses through distance education and sustainable delivery of courses by partners.

Rise and fall of donor assistance could pose significant challenge to developing sustainable capacities in developing countries. The results from capacity strengthening projects have long gestation period before they exhibit positive outcomes. However, most donor institutions are keen to recover costs by showing short-term impact of their investment on capacity strengthening. Measuring the impact of donor investment on capacity strengthening still remains at an elementary stage. Donor-driven capacity development to influence better organization and management and its role in building leadership within national institutions should be studied.

Since capacity strengthening as a research domain is still at a formative stage, possibilities to expand its horizon looks extremely positive. The current challenges and limitations would form the basis for developing new outlook and approaches for capacity strengthening. It is expected that benefits and impact from successful capacity development will far outweigh the challenges and limitations to it.

10. Possible Impacts of Capacity Strengthening Research and Outreach

The possible impacts of the outreach and research activities are many. The potential impacts of the outreach activities are:

- Thematic and emerging issues affecting agriculture, food and nutrition security, and natural resources will be better understood;
- Capacity in conducting agriculture and food policy analysis will be improved;
- Postgraduate education in agriculture, natural resources, and food will be of higher quality;
- Policy and program recommendations will better represent the needs of the targeted audience;
- Policymakers will better understand the policy options;
- Communication between researchers and decisionmakers will be greater;
- Researcher output will meet the needs of decisionmaker better;

- IFPRI's research and datasets will be disseminated to and utilized by a larger audience;
- A larger pool of partners for IFPRI to collaborate with in conducting research, policy communication, and capacity strengthening; and
- Researchers will be able to communicate policy research results better and to the appropriate media.

Some potential impacts of capacity strengthening research are:

- Identifying capacity strengthening outreach opportunities from the assessment of capacity gaps in agriculture research and policy analysis at the national and regional levels;
- Improved development of curricula;
- Better implementation of capacity strengthening activities;
- Enhanced delivering of capacity strengthening activities;
- More efficiently developed and higher quality learning materials;
- Enhanced delivery of capacity strengthening and training activities; and
- Better understanding the theoretical underpinnings that should support the development of capacity strengthening activities in agriculture, food, and natural resources.

11. Concluding Remarks and Way Forward

Capacity strengthening research can play an important role in enhancing the capacities of researchers, analysts, policymakers, other decision-makers, practitioners, students, and communities. With improved knowledge and abilities these partners will be able to better meet the urgent policy challenges and research related to food, nutrition, agriculture, natural resources, and poverty. Capacity strengthening thus far has been in the form of diverse activities often undertaken separately by the different divisions.

This document provides the rationale for the capacity strengthening research and outreach activities. The document attempts to develop the broad paradigms of capacity strengthening research. In-keeping with these broad paradigms, the research issues and methods are outlined.

Through capacity strengthening activities in various developing countries in Asia and Africa, the CSP has developed collaborations with various regional and national level institutions for agricultural research and development. Limitations faced while doing capacity strengthening research as well as the possible impacts of the research and outreach activities accompanying it comprise the next two sections.

The strategy of capacity strengthening research is not free of obstacles. Many of the political and economic changes occurring may prevent its strategy from having the positive impact of which they are capable. One of these is the weak education infrastructure in some countries. Other larger impediments are the decline in investments in agriculture and poor governance. With these impediments, capacity strengthening efforts may have little impact in some countries. Fortunately, through adaptation and innovation, the obstacles may be surmounted in some cases. Yet in regard to the major part of the developing world, IFPRI through using a diversified and synergistic strategy that also involves ongoing evaluation and periodic assessments of the organization's strengths, the larger environment, and learning needs, can make a measurable impact on increasing capacity to reduce hunger and malnutrition.

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