

Who Should Implement Nutrition Interventions?

**THE APPLICATION OF INSTITUTIONAL ECONOMICS TO NUTRITION AND
THE SIGNIFICANCE OF VARIOUS CONSTRAINTS TO THE IMPLEMENTATION OF
NUTRITION INTERVENTIONS**

Key words:
Nutrition
Institutional economics
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Executive Summary

Much has been learned about the significance of malnutrition for individuals and for society as a whole in the past two decades. An adequately nourished population has a better chance of reaching full intellectual capacity and economic productivity and enjoying an adequate quality of life. Yet despite this knowledge, malnutrition and hunger remain among the most devastating problems facing the world's poor. Nearly 30 percent of humanity today—infants, children, adolescents, adults, and the elderly—suffer from one or more forms of malnutrition from protein-energy malnutrition to micronutrient deficiencies (WHO 1999).

Experience shows that nutrition interventions significantly help to reduce malnutrition but that implementing them is difficult and influenced by multiple constraints. In fact, the dogged persistence of malnutrition as a public health problem may be related to these constraints.

An overview of the literature of the past two decades on implementing nutrition activities and interventions provides insights into the many factors, both positive and negative, believed to affect this process.¹ Among the positive factors mentioned are the participation of the community and nongovernmental organizations (NGOs), and the integration of nutrition goals in national development programs. Quality nutrition management is also considered essential and positive. The most important constraints, according to the literature reviewed, are the lack of an institutional home or nutrition system. The lack of an intersectoral coordinated approach and political commitment negatively influences nutrition implementation. The complexity of nutrition interventions and the shortage of financial resources are also mentioned often in the literature.²

Despite the vast amount of information available on these factors, so far no clear understanding has developed about the relative importance of each on the implementation process. The purpose of this paper is to analyze each factor's relative importance in the implementation of nutrition interventions. Because the largest financier of nutrition interventions in developing countries is the World Bank, its projects are used as the research population. It is hypothesized that the effective use of available funds for nutrition in World Bank-supported projects is impeded primarily by the lack of an institutional home for nutrition and by the related question of responsibility for delivering nutrition services,

To test the hypothesis, a framework is developed, typifying nutrition interventions using institutional economics and Hirschman's trilogy of incentives. Institutional economics provides useful insights and ideas for exploring questions about which institution could best deliver basic services. In the health sector, institutional economics provides insights into the roles of the public and private sector, a question many governments are facing in countries around the world (Preker et al. 2000). Two projects that implement nutrition

¹ All literature references marked with a * in the bibliography are part of the overview.

² Nutrition is multifaceted, believed to make intervening complex.

services, using innovative new approaches, are examined closely. The findings are included in discussion of the results of the statistical analysis.

With the probable factors identified in the literature review and using the framework, a simple econometric model is developed to measure each factor's relative importance to the dependent variable, disbursement rate (percentage). The model is applied to the sample of World Bank projects and tested using simple linear regression analysis. The relative importance of each factor to the dependent variable is estimated using stepwise regression.

The results of the analysis suggest that concern is justified regarding the failure of well-prepared nutrition interventions during implementation. Of the funds allocated to nutrition, only 66 percent is spent. This is far less (21 percent) than disbursement rate for the entire credit, indicating that nutrition-specific constraints play a role.

The statistical analysis confirms that three of the factors analyzed significantly and positively affect the implementation of nutrition interventions. The use of the preferred mechanism for delivering nutrition interventions according to goods characteristics, institutional economics, and Hirschman's trilogy of incentives is the first. The inclusion of institutional development interventions in a project significantly improves disbursement. The disbursement of the total credit is the third significant factor. Together, they explain 80 percent ($R^2 = 0.80$) of the variation in the disbursement of funds allocated to nutrition in World Bank-supported projects.

The other factors frequently mentioned as determinants of the success or failure of nutrition interventions are the existence and application of a national plan of action for nutrition, the institutional home for nutrition, project complexity, multiple sector involvement, and the extent of the World Bank's commitment of expert time and credit size. The analysis further shows that these factors influence disbursement for nutrition in World Bank projects, but not significantly.

The findings of this study strongly suggest that closer attention should be paid to the factors that are significant in predicting disbursement for nutrition in World Bank projects.

ACRONYMS

AGETIP	Agence d'Execution des Travaux d'Intérêt Publique contre le Sous-emploi
CBO	Community Based Organization
EAP	East Asia and Pacific
ECA	Eastern Europe and Central Asia
FAO	Food and Agriculture Organization
GDP	gross domestic product
IEC	information, education, communication
LAC	Latin America and Caribbean
MENA	Middle East and North Africa
M&E	monitoring and evaluation
MOH	Ministry of Health
NGO	nongovernmental organization
NPAN	National Plan of Action for Nutrition
OED	Operations Evaluation Department, World Bank
OPM	Office of the Prime Minister
PSDM	preferred service delivery mechanism
SAS	South Asia
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WB	World Bank
WHO	World Health Organization

1. Introduction

Much has been learned about the significance of malnutrition for individuals and for society as a whole in the past two decades. An adequately nourished population is more productive than a hungry society and has a better chance of reaching full intellectual capacity and an adequate quality of life. Investing in nutrition contributes to human welfare and economic growth. Although nutrition interventions are crucial to a country's economic potential, a number of factors interfere with the delivery of nutrition services and good nutrition. These factors include the lack of an institutional foundation, capacity, political commitment, human and financial resources, and commitment during the design of the interventions.

The purpose of this paper is to analyze the relative importance of each of these factors on the implementation of nutrition interventions. Because the largest financier of nutrition interventions in developing countries is the World Bank, its projects are used as the research population. The percentage spending (disbursement) of available funds for nutrition is used as a proxy for implementation. This paper has two main parts: first a theoretical analysis of the constraints to nutrition implementation and the use of insights about nutrition service delivery from institutional economics; and second, an empirical analysis of the theory.

Section 1 describes global malnutrition rates and trends, multisectoral causes of malnutrition, and effective ways of reducing malnutrition. The results of a review of the available literature on the constraints to implementing nutrition interventions are also provided in the first section. Section 2 takes a closer look at the nutrition system constraints and applies insights from institutional economics to nutrition service delivery. Section 3 describes the methodology used in the empirical analysis, and chapter 4 provides the results. Section 5 discusses the results, and Section 6 presents conclusions that can be drawn from the findings. Two community nutrition projects that use innovative approaches to implement nutrition services are closely reviewed. The findings of that review are presented in boxes in Section 5.

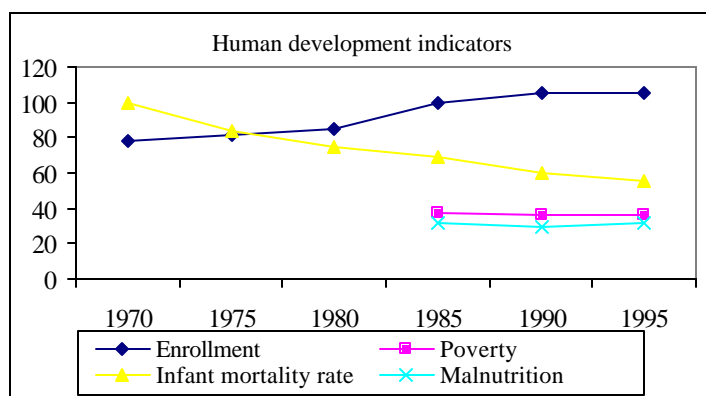
1.1. Global Malnutrition

Indicators of human development such as primary school enrollment and infant mortality rate have improved significantly. However, poverty rates and child malnutrition indicators are improving only slowly (Figure 1). In fact, in the case of child malnutrition in Africa, the trend reversed after 1990 (Table 1). Malnutrition and hunger remain among the most devastating problems facing the world's poor. Nearly 30 percent of humanity today—infants, children, adolescents, adults, and the elderly—suffer from one or multiple forms of malnutrition from protein-energy malnutrition to micronutrient deficiencies (WHO 1999, p.15).

The tragic consequences of malnutrition include death, disability, stunted mental and physical growth, and, as a result, retarded national socioeconomic development. Some 49 percent of the 10 million deaths among children under five years of age in the developing

world are associated with malnutrition (Pelletier 1994). Recent research shows evidence that fetal malnutrition has important immediate and long-term consequences not only for survival, growth, and development in childhood and productivity throughout life but also for the development of chronic diseases in later life (Barker Hypothesis 1999).

Figure 1: Indicators of Human Development Worldwide, 1970–95



Source: Human Development Reports (United Nations Development Program)

Although progress in reducing malnutrition is significant, it is exceedingly slow and does not begin to approach the goals set in 1990 at the World Summit for Children (Table 1).³ Global trends in protein-energy malnutrition decreased over the last two decades from 37.4 percent in 1980 to 26.7 percent in 2000.⁴ Regional trends indicate a significant decrease in Latin America and Asia but an increase in the prevalence of malnutrition in Africa. The trend for Asia shows an impressive decrease from almost 44 percent in 1980 to 29 percent in 2000. Malnutrition rates in Latin America, already much lower than in other regions in 1980 (14.2 percent) decreased to 6.3 percent in 2000. In the Africa region, however, in particular Sub-Saharan Africa, the malnutrition rate has increased over the last two decades, from 26.2 percent in 1980 to 28.5 percent in 2000.

Table 1: Global and Regional Trends in the Estimated Prevalence of Protein-Energy Malnutrition Among Children Under Five, Since 1980

Region	1980		1990		1995		Actual 2000		Goal 2000
	%	Million	%	Million	%	Million	%	Million	%
Africa	26.2	22.5	27.3	30.1	27.9	34.0	28.5	38.3	13.7
Asia	43.9	146	36.5	141.3	32.8	121.0	29.0	108.0	18.3
Latin America	14.2	7.3	10.2	5.6	8.3	4.5	6.3	3.4	5.1
Total developing countries	37.4	175.7	32.1	177	29.2	159.5	26.7	149.6	16.1

Source: WHO (2000).

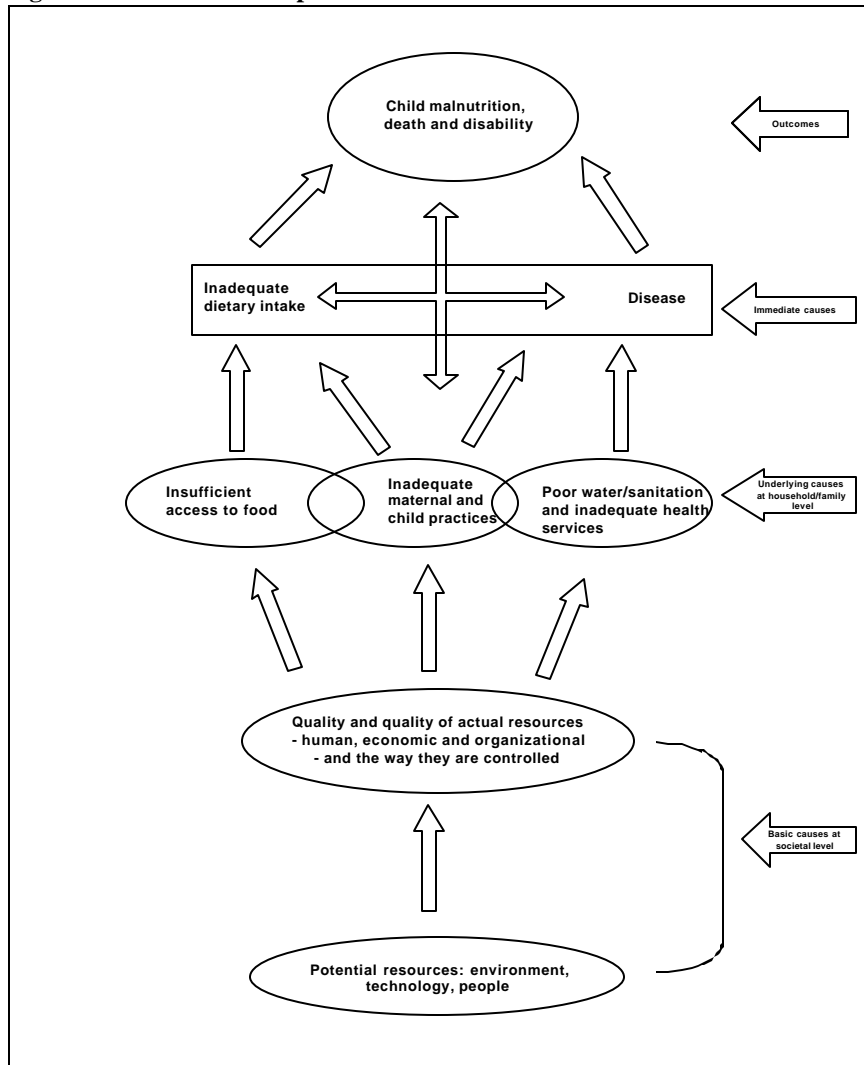
³ The World Summit for Children, held in New York in September 1990, set goals for reducing and eliminating child malnutrition. Through extensive consultation in various international forums, attended by virtually every government. Major goals were formulated for child survival, protection, and development. One of those goals was to halve severe and moderate malnutrition by 2000.

⁴ In a well-nourished population, 2.3 percent of children under five years of age would have weights under the 2 S.D.: WHO (1995).technical reports series, Physical Status: the use and interpretation of anthropometry, 1995.

The causality for malnutrition and ways to address it are laid out in the multisectoral conceptual framework developed by the United Nations Children's Fund (UNICEF) in 1990 (Figure 2). Malnutrition and death in women and children result from a long sequence of interconnected events. Inadequate dietary intake and disease are the most immediate causes of malnutrition. Dietary inadequacies may be caused by an inadequate supply of food or by mothers' having too little time to prepare food and feed their children. Malnutrition may also result from less direct factors such as lack of access to basic health services, inadequate water supplies and sanitary facilities, poor food hygiene, and inadequate childcare at home. These underlying causes, numerous and usually interrelated, cause malnutrition through inadequate diet and disease. For example, diarrhea as a result of poor water and sanitation impairs nutrient absorption and reduces dietary intake.

Furthermore, at the societal level, there should be a system to ensure proper and equitable use of food and health services for the benefit of children and women. Education, water, and housing may all affect the outcome of nutrition. Most of the underlying causes of malnutrition themselves result from unequal distribution of resources. Often the political, economic, and ideological structure in developing countries is not conducive to good nutrition, which often leads to a lack of resources to address malnutrition and its determinants. Formal and informal institutions play an important role as the interface between underlying and basic causes, as they provide basic services and promote improved practices regarding food production and childcare.

Figure 2: UNICEF Conceptual Framework



Source: UNICEF (1990).

The causal framework (Figure 2) has become one of the most familiar images within the international nutrition community (Pelletier 1999, p.2). It helped foster improved understanding and dialogue about the nature and causes of malnutrition.

Consensus on ways of improving malnutrition has also come about in the last few years. The combination of equitable employment generating economic growth, strong political support for the social sectors (particularly education and health), and community-based programs oriented toward nutrition have had a positive impact on nutrition (Gillespie et al. 1996, p.89). Experience demonstrates that malnutrition *can* be addressed effectively at reasonable cost through appropriate programs and strategies. Progress in countries as diverse as Costa Rica, Indonesia, Thailand, and Zimbabwe shows that rapid improvement in nutritional status is achievable (McLachlan 2000, p.2).

In Thailand, the prevalence of underweight decreased from 51 percent in 1982 to 18 percent in 1990. Thailand's success resulted largely from community participation and such favorable conditions for nutrition improvement as economic growth and broad social development (Mason 1999, p.6). In Costa Rica, malnutrition in terms of stunting, decreased about 1 percent a year in 1979–89.⁵ This transition resulted from a combination of social welfare and health services, with a shift in emphasis to prevention and community-based actions. The change in Indonesia took place over decades but accelerated in the 1980s with a massive expansion of village-level health and nutrition activities (Mason 1999, p. 28). Also in Zimbabwe, largely due to the successful approach of village committees in providing basic services, severe malnutrition was practically eliminated between 1980 and 1988. These experiences show that, when backed by political support and economic growth, nutritional status can be improved by implementing nutrition interventions with community participation.

Despite the available experiences, one school of thought still holds that improvements in nutritional status result primarily from economic growth and that nutrition will automatically improve if development policy focuses on economics. Indeed, Mason (1999) found an improvement in nutrition associated with GDP growth. The reduction of underweight associated with GDP growth has been 0.1 percent a year over the last two decades.⁶ To address this question, Alderman et al. (2000) recently analyzed data sets from 63 developing countries. According to their findings, if countries can achieve a stable 5 percent per capita income growth, underweight could decline by around 20 percent by 2010. However, this is an optimistic view and, if income growth is only half of the assumed 5 percent, the projected decline tends also to be halved. At this rate, waiting for economic growth to solve nutrition problems will take many decades.

1.2. Nutrition Interventions and Implementation Constraints

Thus, nutrition interventions and actions can help reduce malnutrition significantly. But the downside is that countries often find implementation difficult, especially in the case of large-scale nutrition projects. One of the reasons that malnutrition remains one of the most persistent public health problems may be related to the many constraints to *implementing* nutrition interventions.

Fifteen years ago John O. Field compared the process of nutrition implementation to a “black box,”⁷ and today it appears that much remains to be done to improve understanding of the implementation process. According to Field, nutrition interventions were poorly implemented because little thought was given to implementation. He

⁵ *Stunting*, using low height for age as an indicator, is strongly linked to chronic malnutrition and poverty.

⁶ The relationship between change in malnutrition and economic growth has been investigated using national estimates of the prevalence of underweight in preschool children (compiled for the Administrative Committee on Coordination / Sub-committee on Nutrition (ACC/SCN) reports on world nutrition). Growth in GDP/per capita is significantly associated with the rate of change in the prevalence of underweight, as expected, with each percentage point of growth in GDP associated with a reduction of 0.1 percentage points a year in underweight (Mason 1999).

⁷ Input—process/black box—output. Input can be nutrition projects, interventions, and financial resources; and output, a well-nourished population.

compared policymakers' attitude toward implementation to "machine theory," a perspective that regards implementation as nearly automatic once decisions and policies are made (Field 1985). Nutrition projects are often thoroughly prepared and apply appropriate technical methodologies, but not enough consideration is given to the implementation mechanism.

In 1996, more than 10 years after Field published his concerns, the Food and Agriculture Organization (FAO) reported that 139 countries were preparing or had completed their National Plans of Action for Nutrition (NPAN). However, most of these plans still did not elaborate the specific interventions or identify the necessary resources or mechanisms to implement the interventions (FAO/WHO 1996, p.9). Thus, National Nutrition Action Plans exist but do not identify the mechanisms through which the activities should be implemented. Also, ownership of the NPAN, and strong commitment to implement its proposed activities, may be less than adequate. The development of NPANs was largely promoted, sponsored, and, in some cases, led by external partners instead of the country itself.

Inadequate consideration of implementation mechanisms and political commitment are not the only constraints. The relevant literature of the last two decades on the process of implementing nutrition activities and interventions provides insights into the many factors, both positive and negative, believed to affect the implementation of nutrition interventions.

Among the positive factors are: community participation; the integration of nutrition goals into national development programs; functional management; and NGO involvement. Strong community involvement and delivery of services through village committees are salient features of successful large-scale nutrition projects in Indonesia, Thailand, and Zimbabwe, for example. Community empowerment, not just participation, is a widely accepted success factor in many nutrition interventions.

The most important constraint, according to the literature reviewed, is the lack of an institutional home or nutrition system. The lack of an intersectoral coordinated approach and political commitment also works against nutrition implementation. The complexity of nutrition interventions and the lack of financial resources, too, are often mentioned in the literature.

Despite the vast amount of information available on these factors, so far no clear understanding has developed about the relative importance of each on the implementation process. The relative importance will be analyzed in Section 4 using World Bank-supported nutrition interventions as the research population.

1.3. World Bank: Largest Financier of Nutrition Interventions

Because the World Bank is the world's largest financier of health, nutrition, and population interventions to developing countries, its projects are used as the research population. Annual average commitments exceed US\$1 billion (World Bank 1999a, p.5).

The World Bank started lending for nutrition interventions in 1976 and has since allocated more than US\$1.8 billion to nutrition. Average annual commitments amounted to about US\$120 million between 1996 and 2000.

As discussed in Section 1, various factors and constraints affect the process of implementing nutrition interventions. One constraint mentioned is the lack of financial resources. The figure of US\$1.8 billion for the nutrition portfolio over the last two decades is based on estimates made during project preparation. How much of those funds available for nutrition has been disbursed or spent is unknown.⁸ The existence of constraints to implementing nutrition interventions may well start at the disbursement stage. In other words, lack of financial resources is not a constraint but a consequence of the constraints.

1.4. Purpose of This Study

The purpose of this study is to improve the effective use of available funds for World Bank–supported nutrition interventions. The study takes a close look at the constraints and analyzes the importance of these factors for disbursement rates for nutrition interventions in World Bank–supported projects. It hypothesizes that the lack of an institutional home for nutrition and specific responsibility for delivering a specific nutrition service is the most important predictor of disbursement for nutrition interventions in World Bank–financed projects.

The lack of an institutional home for nutrition creates difficulties in the entire process of implementing nutrition—from the development of nutrition policies and mandates, to the execution, monitoring, and evaluation of nutrition interventions, to the enforcement of mandates such as salt iodization and the implementation of the international breast-feeding code.⁹ The lack of an institutional home further hinders coordination and collaboration between stakeholders within a country and relations with external donors and other development partners.

The channel or mechanism that delivers a nutrition intervention to the targeted population is a major factor in implementation success. Specifically, it is the *characteristic of the service* that determines the *delivery agency*. Products (micronutrients, educational materials, food) have to be delivered, and processes (training, monitoring, and evaluation) have to happen. Channeling through the proper mechanism makes them more likely to materialize. For example, the economic goods characteristics of child growth monitoring services are that: their use is difficult to measure; their quality is difficult to monitor; and there are many potential suppliers. Those services, according to institutional economics insights, are best delivered through civil society, agencies close to the community such as NGOs and community-based organizations (CBOs), following the

⁸ In World Bank projects, the disbursement percentage of the credit is used as an indicator of progress in implementing planned interventions. Disbursement is measured throughout a project's life. Since nutrition interventions in many cases compose only part of a project, disbursement is not measured automatically.

⁹ The international breast-feeding code, adopted by most countries, prohibits the marketing of breast-feeding substitutes for infants under six months of age and the provision of free samples of breast-feeding substitutes by health personnel and in health facilities.

subsidiarity principle. It is hypothesized in this study that nutrition services, if delivered by the preferred mechanism (as defined in Section 2.6), will have higher disbursement rates and lower risk of failure. The thinking behind this hypothesis, based on institutional economics and the Hirschman trilogy, is described in Sections 2.2. to 2.6.

Section 2 of this paper focuses on the two hypothesized variables. The constraints related to the lack of an institutional home for nutrition are described in detail. Insights from institutional economics are applied to the nutrition system, and a framework is developed for use in the empirical analysis in Section 4.

However, not only the institutional home and the preferred service delivery mechanism are included in the regression analysis. The other constraints identified in the literature reviewed in Section 1.2 are included to provide insight into their relative significance for disbursement. The results of this analysis should be used to focus close attention on those factors during the preparation and supervision of World Bank nutrition projects.

2. Nutrition System Constraints and Insights From Institutional Economics

2.1. Nutrition System Constraints

During the last fifty years of international research on nutrition, the fact that nutrition lacks a “home,” a solid institutional foundation, has been a key concern in many developing countries (Levinson 1999b).¹⁰ Unlike sectors such as health and education, the nutrition system is not securely situated in a ministry or department with clear mandates, goals, and resources (both human and financial). Nutrition is a complex social issue, and malnutrition is an outcome of social problems. Malnutrition has multifaceted causes, as laid out in the UNICEF framework in Section 1. Nutrition interventions cross boundaries, and their impact often depends in part on non-nutrition inputs such as an increase in per capita GDP. Since public administration is divided into sectors and services are provided through sectors, nutrition must either be identified and assigned to a sector or should be recognized and given appropriate attention. Nutrition does not necessarily need to be a *sector* by itself.

Institutionalization of nutrition first became a matter of public debate in the 1970s with the introduction of multisectoral nutrition planning cells.¹¹ These cells were placed centrally in a planning commission or in the Office of the President (Levinson 1999a, p.43). The reasoning behind this debate was to affect a broad array of development policies and programs instead of focusing only on interventions. With the assistance of the U.S. Agency for International Development (USAID) and the Food and Agriculture Organization (FAO), 26 planning cells were established in developing countries during the 1970s. Notwithstanding their important contribution to later programs, overall they proved largely unsuccessful (Levinson 1999b).¹²

¹⁰ For further discussion of the actors in the “institutionalization debate,” see Levinson (1999b).

¹¹ *Nutrition institutionalization* in this paper refers to the place or locus of nutrition in national structures.

¹² For further discussion of the reasons for the problems encountered, see Field (1987), Berg (1987), and Levinson et al (1995).

Although this particular failure is not further analyzed in this paper, the work of Fred Riggs suggests some interesting points for future research. Riggs (1964) viewed the characteristics of the administration in transitional societies (developing countries) as the main challenge to development management. Using the metaphor of a rainbow, he says that societies go from being fused (largely agricultural rural), through prismatic (transition from rural to urban), to diffracted (urban and industrialized).¹³ Many developing countries are somewhere in transition, “prismatic societies.” A *diffracted society* will have a set of concrete structures and institutions to perform specific administrative functions. A *fused society* will have fewer established structures and will depend more on nonspecialized (and family) structures. Structures and institutions are more difficult to define in the *prismatic society*, and should therefore be assessed and analyzed carefully before proposing new structures. The lack of early assessments might have played a role in the failure of the multisectoral planning units in developing countries, since they were proposed mainly by external agencies.

Esman’s work (1991) is also of interest for future research. He suggests that multi-institutional service networks are the most effective vehicle for interagency collaboration. Esman’s service networks are not formal, and operational necessities bring their members together. Service networks function by simply dividing the labor, according to each network actor’s strengths and weaknesses (governments, private and voluntary sectors). Networks are self-organized and self-managed and depend heavily on common values, collaborative behavior, and strong leadership. The multisectoral nutrition planning cells were largely promoted by external partners, required extensive data collection and analysis, and were not founded on clear operational necessities. These design differences may explain why the latter were not successful. In fact, according to Field (1987, p.22), many nutrition planners believed that nutrition advocacy would enlighten policymakers sufficiently to lead to action. What will really bind Esman’s network is mutual advantage. The Groupe d’Action Inter-agencial pour la Nutrition (GAIN) in Madagascar can be viewed as an example of a multi-institutional service network à la Esman (Box 1). Esman sees shaping and nurturing the development of multi-institutional networks as one of the big challenges of development management.

¹³ Economic dualism.

Box 1: Madagascar GAIN

The Groupe d'Action Inter-agencial pour la Nutrition was set up following the scaling up of several nutrition programs, implemented by different actors in Madagascar. Coordination was an operational necessity because program activities risked overlapping geographically and because the messages disseminated to the communities had to be unified. The six-year-old group, made up of all stakeholders in nutrition, is informal, has a rotating chair, and meets regularly. It has succeeded in approving new initiatives, disseminating new information, and building consensus among Madagascar's nutrition actors. Some difficulties have arisen from its not formal status such as the lack of a secretariat and lack of official funding. However, informal status is perceived as a crucial feature for the group's functioning. According to its members, if given official status, members would demand payment, and consensus building would be much more difficult.

a. Personal communications with group members and external donors.

In the 1980s, with the multisectoral nutrition planning units largely dysfunctional, the focus in nutrition moved to implementing nutrition interventions, most commonly through Ministries of Health (Levinson 1999b). Because nutrition is often considered a public health issue, it is placed under the mandate of the Ministry of Health (MOH). However, there is no consensus within the nutrition community about the logic of placing nutrition under any line ministry, whether it be health, agriculture, welfare, or social services.

Whether nutrition should maintain its identity or whether it should be incorporated into larger programs and departments addressing health, poverty alleviation, food, and agriculture are being discussed. Another method often mentioned when discussing where to place nutrition is to split it up and organize it by type of malnutrition (undernutrition, micronutrient deficiencies, overnutrition) or by type of interventions (supplementation, fortification, food-based income transfers). In all, there is no consensus, and little research has been done on the strengths and weaknesses of setting up one institution for nutrition over another method. But many in the nutrition community agree that nutrition, as a multifaceted social problem, needs more than a department under a line ministry.

The above discussion on nutrition systems focuses more on policymaking and programming than on implementation or service delivery. Although policymaking and programming remain important fields for further exploration, the following section focuses on delivery systems and the type of institution best suited to deliver nutrition services, again drawing insights from institutional economics.

2.2 Insights From Institutional Economics

Institutional economics provides useful insights and ideas for exploring questions on the type of institution that should deliver basic services because it adds transaction costs and information asymmetry to neoclassical economic theory (Eggertsson 1990).¹⁴

Transaction costs are the costs of institutional arrangements to manage the exchange of goods or services (Eggertsson, 1990). *Information asymmetry* is defined as the degree to

¹⁴ In the health sector, institutional economics provides insights in the roles of the public and private sector, a question many governments are facing in countries around the world (Preker 1999)

which the same information about service delivery performance or quality is available to users and producers. Demand has to meet supply, which does not always happen by itself, especially in the realm of nutrition services. Traditionally, neoclassical economics provided the rationale for delivering basic health services, including nutrition interventions, through the public sector. Nutrition interventions, apart from public information campaigns,¹⁵ are often wrongly considered public goods.¹⁶ As a result, responsibility for implementing them is traditionally placed in the public sector, most commonly under MOH or the Ministry of Agriculture. However, transaction costs and information asymmetries help explain why the public sector is not necessarily the most suitable institution for delivering all public services. Preker et al. (2000) for example concludes that the state has a strong role in providing direction in the health sector, but he challenges the public production of health services.

Transaction Costs

Transaction costs in nutrition consist largely of arranging contracts to deliver services and monitoring their execution (Coase 1991, p.715). Transaction costs are associated with the cost of acquiring information, which in neoclassical economics was assumed fully available to every individual. Transaction costs can be considerably high and as such decrease welfare (Eggertsson 1990).

Nutrition interventions have substantial transaction costs for several reasons: information on nutritional status is not readily available, and national nutrition surveys and individual child growth monitoring are costly; there is little direct demand for nutrition services (demand, other than food, is difficult to define by the individual for lack of information); interventions take place largely at household and community levels, resulting in high outreach costs; and monitoring and evaluating nutrition interventions is logistically difficult and costly. Experience shows that line ministries are not always sufficiently equipped and incur high transaction costs in delivering nutrition services. With low budgets and allocation priorities, nutrition is more likely to be removed from the work program and runs the risk of “falling through the cracks.”

Coase and later Williamson (1985, p.387) found that contracting another institution can reduce transaction costs. In other words, changing the institutional arrangements can increase welfare. In fact, transaction-cost analyses examine the comparative costs of planning, adapting, and monitoring a task under different institutional arrangements to identify their comparative advantages. The application of such an analysis on delivery arrangements for nutrition services will be developed in Section 2.4 and will be tested in Section 3.

Information Asymmetry

Neoclassical economics assumes that each individual has access to all information and makes rational choices. Institutional economics questions this assumption and introduces

¹⁵ For example, breast-feeding promotion and healthy diet promotion through the mass media.

¹⁶ For more extensive discussion of public goods in nutrition, see Musgrove (1996).

information asymmetry and limited rationality in individuals' decision making. Institutional economics tries to ascertain which institutions to establish in order to limit asymmetry of information.

Lack of appropriate nutrition information and incorrect feeding practices regarding the nutrition of infants and young children is a main determinant of malnutrition. Improved nutritional status is achieved largely by changes in behavior of individuals or, in the case of young children, caretakers in order to achieve optimal nutrition practices. Behavior can be changed through counseling or providing appropriate and timely information. The gap is substantial between the information an individual has and the information that reaches the individual through professional channels,¹⁷ the media, and advertising.¹⁸ Health professionals are often inappropriately or insufficiently instructed regarding nutrition issues and may convey wrong messages. For lack of information, therefore, the receiving individual cannot properly judge the message. Institutional economics takes this information asymmetry, as a characteristic of the service, into the analysis.

Other Simultaneous Developments

Governments' fiscally weakened capacity to deliver public health services and the flawed rationale for their attempting to deliver them were recognized at the same time (Picciotto 1995, p.6). As a result, emphasis shifted to mobilizing private and other funds and exploring other delivery arrangements. In response to pressing social and environmental problems, voluntary organizations (e.g., NGOs, CBOs) multiplied and attracted substantial development funding. The importance of beneficiary participation in achieving project objectives became clear (Picciotto 1995, p.18). Technological and organizational innovations also opened new opportunities for private providers, and states are taking advantage of these opportunities.¹⁹

Efficiency gains from contracting out certain services to the private sector and NGOs have been proven. Since the 1970s, governments around the world have been experimenting with market mechanisms and citizen participation in the delivery of basic health, education, and other social services.

Although the nutrition mandate is often placed under the line ministries, NGOs and private organizations have implemented nutrition services on a large scale. Examples of governmental experimentation with institutional arrangements to improve service delivery are: expanding exit options, creating greater use of markets, contracting out, creating performance-based public sector agencies and holding them accountable (Senegal Community Nutrition is an example of this approach); strengthening users' voice, widened use of NGOs, client surveys, user participation (Madagascar Community Nutrition Project uses this arrangement); and improving compliance and loyalty,

¹⁷ For example, *hypogalactia* is a medical term used when women cannot produce sufficient breastmilk. However it is widely recognized that this syndrome is created by uninformed health professionals and by strict breast-feeding schedules, separating mothers from their children, and the introduction of early weaning foods.

¹⁸ Nestlé promoting breast milk replacements, McDonald's targeting young children.

¹⁹ In the broad sense, including nonprofit.

cultivation of “esprit de corps,” and merit-based recruitment and promotion in bureaucracies (World Bank 1997, pp. 87–92).

In the following section, institutional economics will be applied to nutrition service delivery. This will provide the basis for adapting the framework for determining the best service delivery mechanism for nutrition services. The framework will then be used to test whether services implemented by that mechanism have higher disbursement rates in World Bank–supported nutrition interventions.

2.3 Applying Institutional Economics Insights to Nutrition

The nutrition system, lacking an obvious “home base” for delivering its services, is often placed under and made dependent on other sectors, line ministries, or alternative channels. These service delivery channels can include NGOs, CBOs, and research institutes, both private and semiprivate. Alternative arrangements also allow government to tap local human resources, for example, by leasing and contracting out, especially to small, private enterprises (Marek et al. 1999, p.388).

Thus, several very different types of institutions and arrangements can deliver nutrition services. Some are public, some private, and some enlist civil society or community participation. The choice of delivery arrangements from among so broad an array of options prompts some questions. Does any one institution or arrangement have comparative advantage over others to deliver nutrition services? What are the best combinations available and what are the implications for implementation? Can “preferred service delivery mechanisms” be identified for nutrition services?

One way to analyze this is to apply institutional economics to typify nutrition services, based on their economic characteristics. To identify the “preferred service delivery mechanism,” Hirschman’s trilogy of incentives (1970): can be used: exit, voice, and loyalty.

2.4 Applying Goods Characteristics to Nutrition Services

Typifying nutrition services according to institutional economics means using the three economic variables that determine goods characteristics (measurability, information asymmetry, and contestability, explained below). This approach follows much of the recent academic and policy literature on service delivery as well as the World Bank’s own experience (Preker et al. 2000, p.6; Girishankar 1999, p.3; World Bank 1997). This is different from the traditional rationale economics, which uses consumption characteristics—rivalry and excludability—and results in a preference to deliver basic services through the public sector. Categorizing by goods characteristics helps identify optimal combinations of service delivery mechanisms: private sector, nongovernmental sector, community participation, and public sector (Israel 1987; World Bank 1993; Pradhan 1996; World Bank 1997, p.87).

Girishankar (1999, p. 17) recently developed a framework based on institutional economics goods characteristics for the delivery of basic health services. This framework is adapted in this study to categorize nutrition services according to goods characteristics (Table 2 and Appendix A).

Table 2: Matrix 1—Six Categories of Goods and Services with Examples

<i>Variables</i>	<i>High contestability</i>		<i>Low contestability</i>	
High measurability	<i>Type 1</i> - Iron supplementation ^b - Vitamin A supplementation ^b - Infrastructure - Infrastructure; equipment, vehicles, building - Food distribution - Iodine-fortified salt production - Iron-fortified wheat flour production - Vitamin A– fortified sugar production		<i>Type 2^a</i> - Multivitamin and mineral fortification of a staple food - Advanced hospital equipment to perform liposuction - Start-up industries for weaning foods and other specialized foods	
Low measurability	<i>Noninfo asymmetric, Type 3A</i> - Monitoring and evaluation - Policy analysis - Research	<i>Info asymmetric, Type 3B</i> - Growth promotion - Information, education, and communication, nutrition education at community level	<i>Noninfo asymmetric, Type 4A</i> - Policy development and decision making - National plan development - Criteria development for quality standards and monitoring and evaluation	<i>Inf asymmetric^b, Type 4B</i> - Information campaigns

Note: Adapted from Girishankar (1999).

a. Only when very highly specified investments are needed.

b. In this study, it is assumed that demand is there, although it is widely known that demand and compliance are problematic, especially with iron supplementation, largely due to the lack of supplies. However, this is outside the scope of this study.

c. Common pool resources only

In the upper middle column of Matrix 1, *contestability* is a measure of competition between suppliers of a service or good. The competitive nature of the market in which the goods or services are purchased depends on market entry and exit barriers for producers such as high initial investment costs and high-risk investment. Low-contestability goods or services have high barriers for the producer. Once a purchaser chooses a producer, however, change is difficult, usually because of commitments made (e.g., insurance to the producer who faces high investment costs). Switching providers is easier for high-contestability services, which are best provided through competitive or market pressures. An example of low-contestability services in nutrition would be the double fortification of salt, which requires high initial capital start-up investments for research and technology. Examples of high-contestability services are food distribution and iron-fortified wheat distribution.

Measurability, the first column in the matrix, is the precision with which policymakers can monitor a service delivery output. The outcome of services, for example nutrition education, is difficult to monitor and is placed in the lower part of the matrix. Vitamin A distribution is easier to measure (if a good system is in place) and goes in the upper part of the matrix.

Information asymmetry, in the lower right of the matrix, is defined as the degree to which information about service delivery performance or quality is available to users or beneficiaries, but not to the “producer” or contractor of the services. Or vice versa: the information about service quality is available to the deliverer, but not the beneficiary. Relations between a doctor and a patient are usually information asymmetric. Doctors know more about the quality of treatment than patients (Preker et al. 2000). Child growth promotion illustrates the first-mentioned dilemma. Beneficiaries can monitor performance of those services more effectively than a contractor. However, a complication may arise if beneficiaries do not have the right information to judge service quality (Section 2.2.), so there is a dual information asymmetry.

2.5 Identification of “Preferred Service Delivery Mechanism” for Nutrition Services

After applying goods characteristics to classify nutrition services, the next step is to identify the “preferred” delivery mechanism for each service category in the matrix. Here, Hirshman’s three broad sets of incentives for efficient service delivery are used:

- exit or market consumer choice
- voice or client participation
- loyalty or hierarchical sense of responsibility.

Exit is consumers’ option to stop using a product to show their discontent with the product, the usual competition mechanism. Companies with many exit customers will eventually go broke and cease to exist. Markets and contracts with the private sector offer primarily exit options for better performance. In order of strength, the exit option is preferred, unless the weaker variants of voice and loyalty have to be used because the services are not marketable. In nutrition services terms, private sector contracting for micronutrient delivery, for example, offers more exit options, because there is a choice of suppliers and therefore an incentive for suppliers to deliver efficiently. Type 1 services in the matrix are therefore best delivered by the private sector. Policy analysis, monitoring, evaluation, and research can also be effectively executed by the private sector. Standards and criteria development for monitoring and evaluation and policy development (Type 4A services) remain important public sector services.

Voice is the option of expressing concern about a service or product, signaling management to listen and improve to forestall the downfall of the firm or institution. Voice is the typical political mechanism. In the broad public sector, including nonprofits, exit options are fewer, and voice is more influential. For activities whose outputs are difficult to specify and are not contestable, for example, national plan development and nutrition education campaigns, core civil service remains the agency of choice. For these activities, voice and loyalty are important incentives. In addition, local voice can be viewed as community participation and opens the process for transparency.

Loyalty can be defined as steadfast attachment to a product, organization, institution, or party. Loyalty, far from being irrational, can serve the socially useful purpose of preventing snowballing deterioration, which occurs so frequently when there is no exit barrier. Loyalty makes exit less likely and provides greater scope for voice.

One caveat: the framework is developed to identify who *delivers a service*, not who *finances* it. Many of the services mentioned can and should be financed by the public sector but delivered through the private sector or civil society. Distribution of targeted supplementary food and micronutrients are good examples.

2.6 Implications of Goods Characteristics and the Hirschman Trilogy for Nutrition Interventions

Matrix 1 in Table 2 summarizes the basis for identifying appropriate combinations to improve service delivery efficiency by expanding exit (the market mechanism), strengthening voice (participation), or bolstering loyalty (public sector). For contestable services such as commercial products, food, infrastructure, and vehicles, market mechanisms create strong competition for improved services and are therefore the preferred mechanism. Many nutrition interventions fall into the first category, expanding exit. Several of these are now delivered by the public sector (e.g., school feeding programs and micronutrient deliveries). For some services whose outputs the state can specify and enforce at low transaction cost (e.g., monitoring and evaluation and research), the private sector is also the most appropriate mechanism.²⁰

For growth promotion and nutrition education, contracting out to NGOs and civil society is the preferred option. Because these services are hard to measure, monitor, and enforce from above, they are best delivered by organizations close to the community and beneficiaries. Highly measurable but low-contestability services in the matrix (Type 2) are most appropriately contracted or leased out to a public sector agency. Because these interventions require high initial investment, the private market would be interested only if given certain guarantees. Few nutrition interventions fall into this category. The public sector is best suited to implement Type 4A interventions in the matrix because the hierarchy has more appropriate monitoring possibilities. Low contestability, low measurability, and noninfo-asymmetric services are the “pure public good services” or common pool resources. For these services, government should shoulder implementation responsibility. Information campaigns fall into the category of pure public goods²¹. Annex B lists nutrition interventions by service delivery type and institutional option.

In Table 3, Matrix 2, the preferred delivery mechanism for each category of services is added to what was developed in Matrix 1. The second matrix will be used in the analysis in Section 4 of this study to qualify the use of delivery services for each nutrition intervention in World Bank projects.

²⁰ Low ex-ante cost of writing a contract and low ex-post costs of monitoring because the output can be specified and monitored.

²¹ For more extensive discussion on public goods in nutrition, see Musgrove (1996).

Table 3: Matrix 2—Preferred Delivery Mechanism for Six Categories of Goods and Services

<i>Variables</i>	<i>High contestability</i>		<i>Low contestability</i>	
High measurability	<i>Private sector</i> - Iron supplementation - Vitamin A supplementation - Infrastructure - Infrastructure; equipment, vehicles, building. - Food distribution - Iodine fortified salt - Iron fortified wheat flour - Vitamin A fortified sugar		<i>Public and private sector partnership^a</i> - Multivitamin and mineral fortification of a staple food - Advanced hospital equipment to perform liposuction - Start up industries for weaning foods and other specialized foods	
Low Measurability	<i>Noninfo asymmetric</i> <i>Private sector</i> - Monitoring and evaluation - Policy analysis - Research	<i>Info asymmetric</i> <i>Civil Society</i> - Growth monitoring and promotion - Education, information and communication at the community level	<i>Noninfo asymmetric</i> <i>Public sector</i> - Policy development and decision making - National plan development - Criteria development for quality standards and for monitoring and evaluation	<i>Info asymmetric</i> <i>Public sector^b</i> - Information campaigns

a. Only when very highly specified investments are needed.

b. Common pool resources only.

2.7 Institutional Capability as a Condition

This theory of “preferred service delivery mechanism for nutrition services” will be efficient *only* if the preferred institutions have the internal capacity to deliver the services. Institutional capacity is one of the main determinants for the effectiveness of World Bank projects (World Bank 1999a and 1997). *Institutional capacity* is defined as the ability to make effective use of available human and financial resources. For example, for the contracting-out option, institutional capacity to write and enforce contracts is crucial but cannot always be taken for granted in developing countries (World Bank 1997, p.89). Local community organizations and NGOs can sometimes be the preferred provider of services not only because they are close to local concerns (World Bank 1997, pp. 88–89) but because they are also less bureaucratic and more flexible than public providers (Greiner 1989, p.4). However, they have weaknesses such as their limited accountability and constrained resources (World Bank 1997, pp.88–89). The public sector in many developing countries is weak and unstable (subject to changes in key personnel). Assessment of institutional capacity to deliver is therefore essential before any policy decisions regarding service delivery.

Riggs (1964), Esman (1991), and other development management theorists provide useful insights into the institutionalization of nutrition (see above and Section 1.2). Riggs, in his prismatic society work, strongly urges beginning with an analysis of where the country stands in its administrative development and tailoring institutionalization to the existing structures. Esman expands these views to the interdependence of state, markets, and voluntary action. In his view, market institutions, government institutions, and community institutions all need to be activated and strengthened. But, in

development management, understanding developing nations' governments encompasses not only economic dualism (Riggs's prismatic societies) but also complications connected with vertical segmentation, extended kinship obligations, and economic dependency (Esman).

The importance of institutional capacity and development revives the question of where to place the institutional home. Whose capacity should be bolstered? The matrixes developed in Sections 2.4 and 2.6 provide insights into who should deliver the services, develop policy, and assume overall responsibility. The placement of the institutional home, however, requires further study.

3. Empirical Analysis

Now, the theory developed in the first part of this study will be applied to testing the relative importance of the constraints and the use of institutional economics insights on nutrition interventions in World Bank–supported projects.

The disbursement rate of funds available to nutrition in World Bank–supported projects is used as the proxy for implementation of nutrition interventions. Although disbursement does not indicate anything about implementation quality, it is the first step in project spending. If authorized funds are not used or are diverted to other activities, the intervention will be poorly implemented or not implemented at all.

This study is limited to World Bank projects and looks solely at disbursement. It does not assess implementation quality of nutrition interventions, since most impact data on malnutrition indicators are unavailable. Although the study reviews preferred institutions for service delivery, it does not review financing questions.

3.1. Methodology

The relevant project documentation for the 56 selected projects is reviewed, and the disbursement rate for nutrition is calculated. The percentage disbursement for nutrition is the proportion of the estimated funds for nutrition that had been spent when the project closed.

The nutrition implementation literature is reviewed to identify the major constraints underlying nutrition intervention implementation (Section 1.2.). A simple econometric model is developed to measure the significance of each probable factor to the dependent variable: percentage disbursement for nutrition. The model is applied to a sample of World Bank projects and tested by simple linear regression analysis. The significance of each factor to the dependent variable is estimated using stepwise regression.

3.2. Research Population

The World Bank nutrition portfolio contains both stand-alone nutrition projects, and health, education, agriculture, and social sector projects that include nutrition

interventions as part of the project.²² In those “mixed” projects, the size of the nutrition interventions varies from 5 percent to more than 50 percent of the project’s total dollar amount. The projects allocate resources to training, equipment, supplies, civil works, and other expenditures to support interventions that address a vulnerable population’s nutrition status. Included in this broad range of interventions are school nutrition and feeding programs, growth promotion and nutrition education, micronutrient supplementation, communications for behavioral change, and food fortification with micronutrients. In addition, indirectly improving nutrition but essential for program management are training and institutional capacity building for nutrition, research interventions, technical assistance, and policy formulation. In this study, the dollar amounts allocated to nutrition interventions are called “funds allocated to nutrition.” Total credit (loan amount) is used for the funds allocated to the entire project, including nonnutrition interventions.

Two criteria were used to select projects for analysis:

- At least 5 percent of the total project credit had to be allocated to nutrition interventions. For smaller amounts, the nutrition intervention would not likely have been supervised, and information for the analysis would be unavailable.
- The project had to be closed and an implementation-completion report available.

Of the 219 World Bank projects that included nutrition interventions between 1976 and 1993, 56 projects fulfilled these two requirements and were selected and reviewed for the analysis.²³ (Annex D lists the 56 projects.)

3.3. Econometric Model and Statistical Analysis

According to the literature, several factors contribute to implementation failure of nutrition interventions. They include: lack of political and financial commitment to nutrition; lack of an institutional home for nutrition; insufficient attention to a multisectoral approach to nutrition; weak institutional capacity in terms of human and financial resources; complexity; limited funding for nutrition as a proportion of total credit; limited time spent by a nutrition expert on the project; and, the use of the “preferred service delivery mechanism,” according to goods characteristics and Hirschman’s trilogy. The community participation factor and the use of NGOs, two of the success factors in the literature, is implicit in the last variable. The disbursement rate of the total credit, the last factor mentioned, will also be included as an independent variable, since this is highly likely to be an important exogenous determinant. The amount of funds allocated to nutrition and the time spent by a nutrition expert are interrelated, and the variable used is the ratio of the two.

To test the hypothesis, a simple linear model is developed, with the probable contributing factors, mentioned above, as independent variables and the percentage disbursement as the dependent variable.

Stand alone means 100 percent of the credit is devoted to nutrition.

²³ Two projects were excluded for very low disbursement due to political strife.

The independent variables used are:

- x1. As a proxy for political commitment, the existence of a National Plan of Action for Nutrition and the reflection of its objectives in the project design. Project design and decisions regarding objectives are based on extensive discussions between the “borrower” (usually the government) and the World Bank during project preparation. The reflection of NPAN objectives in a project is considered a sign of commitment to the project. The variable is measured as a 0-1 variable, a yes or no existence and application of the NPAN.
- x2. As a second proxy for political commitment, the placement of the “institutional home” to which the responsibility for the nutrition interventions is delegated. In this study, the institution given the responsibility for executing the nutrition interventions is considered the *institutional home*. This is not necessarily the institution assigned coordination of the overall credit. The measurement here used is whether the institutional home is a *foster home*, meaning a nutrition department under a line ministry (usually health or agriculture), or is more independently situated under the Office of the Prime Minister (OPM) or delegated to an outside agency. The variable is measured as a 0-1 variable, with 1 the more independent entity and 0 situated under a line ministry.
- x3. The involvement of multiple sectors (more than one sector) during the implementation of the project. The variable is measured as a 0-1 variable, with 1 multiple sectors involved according to the documentation and 0 none.
- x4. As a proxy for institutional capacity, the inclusion in the project of institutional capacity development components, addressing nutrition (e.g., staff training, planning, policy development and formulation, technical assistance and monitoring, and evaluation). The variable is measured as the number of components included. “Institutional development components” is a continuous variable.
- x5. The complexity of the nutrition interventions. All nutrition interventions have been categorized according to their level of complexity in Annex C. The criteria used include management requirements, logistic requirements, planning and time requirements, and community participation requirements. Complexity is a continuous variable.
- x6. The amount of funds allocated to nutrition as a proportion of total credit and the percentage of a nutrition expert’s time spent on project design and supervision as a proportion of the total staff time spent on project preparation and supervision are combined in one continuous variable. Expert time spent/credit size.
- x7. The percentage disbursement of the total credit is a continuous variable.

x₈. The percentage use of the “preferred service delivery mechanism.” Each nutrition intervention is categorized in Section 2.4 and a “preferred service delivery mechanism” has been identified in the schedule in Section 2.6. Each project intervention is classified as right or wrong use of a delivery mechanism within the framework. The percentage of right use is entered as the continuous variable.

The model: $Y_n = \beta x_1 + \beta x_2 + \dots + \beta x_n + E$ (error term).²⁴

4. Results of Empirical Analysis

4.1. Actual Spending on Nutrition Compared to Available Funds

The results of the analysis indicate that disbursement rates for nutrition are lower than disbursement rates for the entire credit. The total dollar amount allocated to nutrition in the 56 projects reviewed is US\$610 million. The total amount actually spent on nutrition in those 56 projects is US\$403 million, 66 percent of the allocated dollar amount. To put this in perspective, the overall spending rate for the 56 projects is 87 percent.

Stand-alone nutrition projects scored best in terms of disbursement. Of the funds allocated, 94 percent was spent, compared with only 34 percent in a project where nutrition was only a part of a project executed by the health sector. All 8 projects that did not disburse any of the funds allocated for nutrition were part of health sector projects.

Figure 3: Percentage Disbursement for Total Credit and Nutrition, by Sector

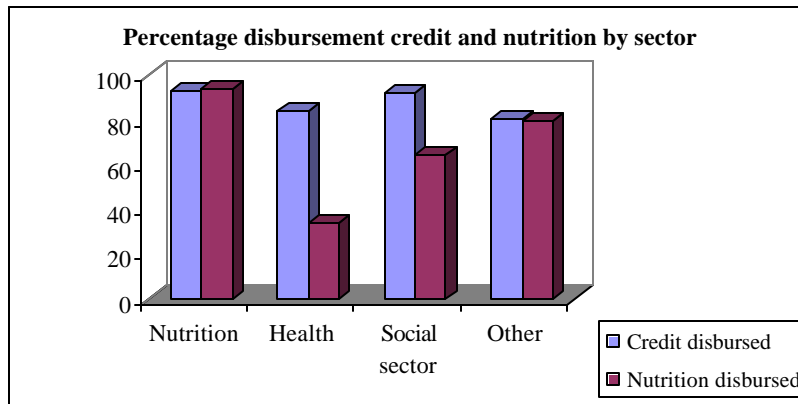
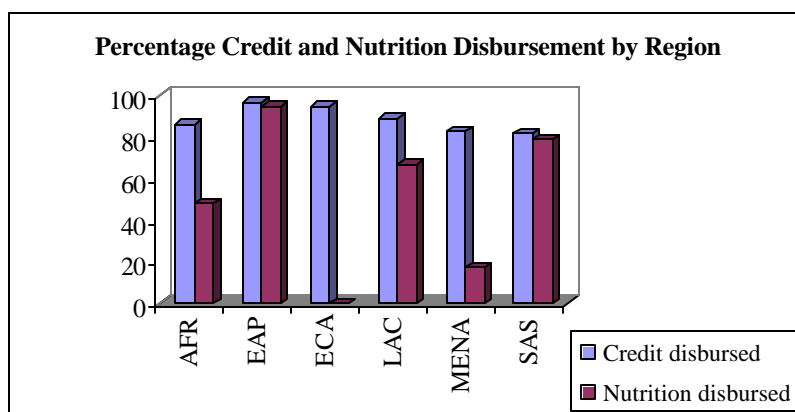


Figure 3 shows the results of credit and nutrition disbursement, by sector. The stand-alone nutrition projects disbursed US\$305.4 million for nutrition interventions between 1976 and 1993. The average credit size for nutrition in health sector projects is small, 10 percent of the project credit, and the average disbursement rate, 34 percent, is low. A total of US\$31.6 million was disbursed for nutrition interventions through health sector projects between 1976 and 1993.

²⁴ The constant is removed. Actual disbursement zero is no project. There is no meaning if the values are zero.

The social sector projects disbursed on average 64 percent for nutrition interventions. Average credit size for nutrition is 27 percent of the project credit. A total of US\$41.7 million dollar was disbursed for nutrition activities through the social sector projects between 1976 and 1993.²⁵

Figure 4: Percentage Disbursement for Total Credit and Nutrition, by Region



Africa (n=19), East Asia and Pacific (EAP, n=5), Eastern Europe and Central Asia (ECA, n=1)
 Latin America and Caribbean (LAC, n=19), Middle East and North Africa (MNA, n= 6)
 South Asia (SAS, n=6).

Disbursement rates for nutrition in the different regions vary widely (Figure 4). The East Asia and Pacific (EAP) region scores best, with 95 percent disbursement, almost 30 percent better than the average. Most of the region’s nutrition activities have been implemented through stand-alone nutrition projects (4 out of 6), which may explain the high disbursement rate. South Asia (SAS) disburses 13 percent more than the overall average for nutrition. In South Asia, 2 out of 5 projects are stand-alone nutrition projects. The Latin America and Caribbean (LAC) region scores just above the mean, an average of 67 percent disbursement for nutrition projects. The LAC region has many social sector fund projects, which disburse well for nutrition. Africa (AFR), the only region with rising malnutrition rates and needing nutrition interventions badly, disburses only 48 percent of the allocated funds. Most nutrition interventions are implemented through the health sector. The projects that include nutrition in the Middle Eastern and North African (MENA) region disbursed only 17 percent, and projects in the Eastern Europe and Central Asia region (ECA) made no disbursements at all. However, particularly in the ECA region, the number of projects is small, and including more projects is likely to improve the findings for both regions.

Table 4 presents detailed information on the type of intervention (N = 199) and whether or not the available funds to implement that intervention were used.²⁶ Behavioral change, staff training, and micronutrient distribution are the three interventions for which a large proportion of the available funds were not used. Food fortification and food coupons score best but, considering the number of times these interventions were implemented, distortion is likely. Because no further analysis on the separate interventions has been

²⁵ Most of the projects distributed food.

²⁶ Every project has one or more interventions, 199 interventions in the 56 projects reviewed.

conducted, the differences in their disbursement rates are hard to explain. However, considering the importance of insights into constraints to specific nutrition interventions, this area is a recommendation for further analysis.

Table 4: Disbursement Score of Types of Interventions

<i>Interventions</i>	<i>Number</i>	<i>Percentage disbursed</i>	<i>Percentage undisbursed</i>
Behavioral change	46	61	39
Staff training	25	60	40
Food distribution	23	65	35
Micronutrient distribution	16	56	44
Fortification	2	100	0
Planning, policy, and programming	24	71	29
Food coupons	4	100	0
Technical assistance	15	93	7
Studies	23	74	26
Infrastructure development	21	76	24

N total = 199.

4.2. Results of Statistical Analysis

The difference in disbursement between projects overall and nutrition interventions suggests the importance of certain factors related specifically to implementing nutrition interventions. The results of the stepwise regression on the significance of factors influencing nutrition implementation are presented in this section.

Analysis of variance was used to determine which independent variables are significant in the disbursement of funds for nutrition interventions in World Bank projects. Three of the seven independent variables are found significant. Table 5 shows the results of the analysis of the variables that are not significant. In the next section, a stepwise regression is carried out to find the best model with the significant variables.

Table 5: Results Analysis of Variance

<i>Independent variable</i>	<i>Mean disbursed (percent)</i>	
Existence of NPAN reflected in project design (dummy variable)	National plan	64
	No National plan	49
Institutional home, independent or foster home (dummy variable)	Independent	72
	Foster home	52
Multiple sectors involved (dummy variable)	Multiple sectors	63
	No multiple sectors	54
Complexity level	Complex	66
	Not complex	50
Nutrition expert time as proportion of total staff time spent/credit size for nutrition funds as proportion of total credit funds	Ratio > 0.5	68
	Ratio < 0.49	49

The existence of a national plan and the use of the NPAN in the project design are not found significant for disbursing funds available for nutrition. The mean disbursement, however, shows a 15 percent difference between projects that did have an NPAN and those that did not. Analyzing the data more closely shows that, of the projects that disbursed all funds for nutrition, 80 percent had an NPAN, and its objectives were

reflected in the project design. More data in terms of numbers of projects and the quality of the NPAN would improve the analysis.

The placement of the institutional home in a foster home or, more independently, under the Office of the Prime Minister or as an outside agency, is not significant in disbursement for nutrition. There is, however, likely to be a bias in the data analysis. Only 15 of the 56 projects had nutrition units placed outside the line ministries and, 41 of them (73 percent) had units in foster homes.

The involvement of multiple sectors in a project during implementation is not found significant to disbursement for nutrition. There is only a small difference in the average percentage disbursement for nutrition for projects involving multiple sectors (63 percent) and those that did not (54 percent).

The complexity of the nutrition interventions is not found significant to disbursement of available funds for nutrition.²⁷ In fact, the more complex projects are disbursed better than the less complex projects—66 percent versus 50 percent. Analysis of expert time spent on a project and complexity, however, reveals that a nutrition expert accounted for 29 percent of all staff time spent on average in complex projects but only 18 percent in less complex projects. The intensity of expert help from a nutrition expert may partly explain why complex projects disburse better.

The ratio of expert time to credit size, the proxy for World Bank commitment to nutrition, however, is not found significant. There is nevertheless an important difference in disbursement between projects that had a reasonable amount of expert time, given the credit size (68 percent disbursement rate), and those with very limited expert time (49 percent)

A stepwise regression was performed to find the best model with the three variables that are significant to disbursement for nutrition: the preferred delivery mechanism, capacity-building interventions, and actual disbursement for total credit. The regression result shows an adjusted R^2 of .80.²⁸ The R^2 represents the proportion of the variation in percentage disbursement explained by variation in the independent variables. In other words, the proposed econometric model explains 80 percent of the variation in the percentage disbursement for nutrition interventions.

The disbursement rate in the best model is determined as follows:

$$\hat{Y}_n = 28x_4 + 0.3x_7 + 0.3x_8.$$

Thus, the model predicts an improvement of 28 percent in disbursement of the funds available for nutrition with every institutional development component included, a 0.3

²⁷ Complexity of the different interventions is defined in Annex C.

²⁸ There is no generally accepted answer to what a high R^2 is. In dealing with time series data, one easily finds an R^2 in excess of 0.5. However, for cross-sectional data, typical R^2 s are not nearly as high. The R^2 of 0.80 here is very high (Kennedy 1998, p.26).

percent improvement with every 1 percent improved use of the preferred service delivery mechanism. Every 1 percent increased actual overall credit disbursement.

5. Discussion of the Findings

5.1 Disbursement Rates

The results of the empirical analysis show that disbursement rates for nutrition interventions are close to 100 percent in the case of stand-alone nutrition projects. When nutrition is part of health or other sector projects disbursement rates are considerably lower. Disbursement rates for nutrition are particularly low in health sector projects, 34 percent on average. Considering that the average credit size for nutrition in those projects is 10.2 percent, World Bank–financed health sector projects do not appear to be the best-suited vehicles for nutrition interventions.

The analysis of disbursement rates also shows considerable regional differences. South and East Asia and the Latin America and Caribbean regions disburse well for nutrition, in comparison with the Africa and Middle Eastern regions.

The analysis of the independent variables, the eight factors identified in the literature as important to the implementation of nutrition interventions, shows that three are significant to nutrition disbursement rates in World Bank–financed projects. These variables explain 80 percent of the variation in disbursement rates: the use of the preferred service delivery mechanism, according to the matrix developed in Sections 2.4 and 2.6; the inclusion of institutional development interventions; and the overall credit disbursement rate. However, closer review of the data shows that, though not significant, other factors help to explain important differences in disbursement rates.

The next section takes a closer look at the findings for each independent variable. Where possible, examples of two ongoing projects (stand-alone community nutrition project) that use innovative approaches to deliver services (contracting out to private sector and NGOs), are included in boxes.

5.2 Political Commitment and Institutional Home Placement

Political commitment is frequently mentioned as a determinant of success in nutrition projects, not least because of resource allocation. Two proxies are used in this study to measure the significance of political commitment in World Bank–supported nutrition interventions: the placement of the institutional home, independent or foster home; and the existence and application of an NPAN. Neither has been found significant for disbursement for nutrition.

However, as mentioned in Section 4.2, there is likely a bias in the data, since only 15 of the 56 projects use an independent home. In fact, the projects in which the responsibility to coordinate the nutrition interventions was delegated to a line ministry disbursed a little more than half of the available funds. Those in which coordination of nutrition was

delegated to an outside agency or put under the Office of the Prime Minister disbursed more than 70 percent of the available funds. This 20 percent difference is considerable.

Possible explanations for the difference are the level of attention and the commitment to nutrition. Nutrition under a line ministry or a foster home in this study is less likely to receive full attention than nutrition under the OPM or an outside agency.²⁹ Another explanation may be the influence the nutrition actors can leverage. Nutrition under a line ministry has to navigate more levels in the bureaucracy, than nutrition under the OPM or an outside agency. Nutrition under a line ministry may also have more difficulty coordinating with other sectors and is likely to have more difficulty voicing needs in the national budget process.

Although the results of this study indicate that placing nutrition directly under the OPM or in an agency with direct links to the OPM and other ministries has a positive impact, this does not imply that certain responsibilities do not have to be coordinated or even shared. The Madagascar case clearly demonstrates the problems that can arise from delegating nutrition responsibility to the OPM or an outside agency (Box 2). The example shows that policy and decision making and training should be coordinated in particular with Ministries of Health and Agriculture.

Box 2: Madagascar—An Institutional Home

The Food Security and Nutrition Project was coordinated by the Prime Minister’s Office, and collaboration mechanisms were set up with the Ministry of Health (MOH) for the policy issues and the rehabilitation of severely malnourished children and with the Ministry of Agriculture for the development of the National Food Security Strategy. When no agreement could be reached on placing the executive unit under one of those agencies, it was decided to set up a separate implementation unit under the Office of the Prime Minister. This decision has had two major effects:

- It gave the project more independence from line ministry bureaucracies, clear leadership, and direct communication to the authorities in charge.
- It made relations between the ministries and the unit more difficult for obvious reasons of resentment.

One of the main implementation problems that the project encountered was the implementation unit’s inability to make satisfactory arrangements with the Ministry of Health to rehabilitate severely malnourished children and to set up appropriate coordination between the two agencies. The nutrition mandate of the MOH nutrition service is largely curative (correcting malnutrition), but the service is very small and poorly equipped. It is also ill placed to coordinate activities with the other ministries. Beyond implementation difficulties, this coordination problem is likely to jeopardize sustainability problems after project completion.

Nevertheless, the results do suggest a clear need for focused attention and some autonomy for a nutrition sector that is placed outside the line ministries. Especially needed are norm setting, policy-making capacity, and influence at high levels of government to put nutrition on the development agenda in many countries.

Deciding where to place the institutional home for nutrition also has budgetary implications. Giving an existing organization responsibility for nutrition may be more

²⁹ Most outside agencies have direct links with the important ministries and are situated high in the bureaucracy.

cost effective than establishing a new structure. However, the organization in question may see its new responsibilities as an extra burden unless it also receives additional funds. Many of the institutional homes used in World Bank projects such as the Madagascar and Senegal community nutrition projects, the Bolivia Social Investment Funds, and the Brazil research and development project use out-of-government structures or place coordination under the OPM. This improves disbursement rates, but problems of sustainability and cost-effectiveness remain.

In short, much more information and analyses are needed to be able to say with more certainty how much autonomy nutrition should have and where its institutional home would best be placed. This study's results—indicating that nutrition homes outside the line ministries spend financial resources for nutrition more effectively—are only a starting point for further research. There is no information about the effectiveness of implementation, although both the Madagascar and Senegal community nutrition projects, executed by outside agencies, have demonstrated both high disbursement and positive impact on nutrition indicators (Boxes 3 and 4).

Box 3: Background on Madagascar Food Security and Nutrition Project

Madagascar is one of the world's least developed and poorest countries. Despite Madagascar's significant development potential, its social conditions remain below Sub-Saharan African standards. More than 70 percent of the Malagasy population live in absolute poverty, with more than 85 percent of the poor living in rural areas. Madagascar has one of the highest rates of malnutrition in Sub-Saharan Africa, and the growth of almost 50 percent of children under the age of five is stunted. Poverty, lack of education, and poor feeding, health, and caring practices are the main causes of malnutrition in Madagascar.

Prepared and approved in 1993, the Food Security and Nutrition project received concentrated attention from the start, as part of the overall poverty reduction strategy of the Malagasy government and the World Bank. The project consisted of three components:

- income-generating activities to be carried out through a social fund and a food-for-work program
- nutrition interventions, including a community nutrition program to monitor growth, provide supplementary feeding, and refer severely malnourished children to health facilities and a national iodine-deficiency control program
- institutional strengthening to support an information, education, and communication program and the development of a National Food Security Strategy for the long term.

The project, successfully implemented in two of Madagascar's six provinces in five years, disbursed 89 percent of its funds available for nutrition activities. All activities were implemented as planned, except for the rehabilitation of severely malnourished children. More than a half million children under the age of five participated during implementation. The objective of reducing malnutrition rates was reached—a 16 percent decrease in Antananarivo Province and a 36 percent decrease in Toliary Province (Institut National de Statistique 1998). Iodine deficiency was drastically reduced, with goiter rates among school children decreasing from 45 percent in 1992 to 18.5 percent in 1996.^a The project has most likely contributed to these reductions^b.

a. *Goiter* is an enlargement of the thyroid gland as a result of iodine deficiency. Grade 0 is no palpable or visible goiter. Grade I is palpable enlarged thyroid, not visible. Grades II and III are palpable and visible enlarged thyroid. (WHO classification).

b. Source: Implementation Completion Report Food Security and Nutrition Project Madagascar

Box 4: Background on Senegal Community Nutrition Project

Senegal is a low-income country. Though better off than many of its Sahelian neighbors, Senegal faces severe development constraints, including arid land, low rainfall, rapid population growth, and economic stagnation. Malnutrition rates in Senegal, after decreasing since 1986, have resumed their rise since the economic crises following the 1994 CFA devaluation. In urban areas, malnutrition rates rose 20 percent points in just two years.

The government of Senegal requested World Bank assistance in 1994 for a community nutrition investment to halt further deterioration of the nutritional status. The project was prepared and approved in May 1995. The total credit for the project was US\$18.2 million, with US\$15 million for community nutrition activities. Those activities consisted of: growth monitoring of children under the age of three; provision of food supplements to malnourished children and pregnant and nursing women; nutrition education; development of a food-security pilot program in rural areas; and capacity building directed at unemployed urban youth.

Preliminary results of the ongoing program evaluation show positive results. Almost the entire targeted population was reached.

Source: Implementation completion report Senegal Community Nutrition Project

5.3 National Plans of Action for Nutrition

The existence and application of an NPAN does not significantly affect the disbursement rate. The external donor community has heavily promoted NPANs and, although many countries have developed one, the extent of their empowerment and commitment to it remains unclear. The results of this study strongly suggest that an NPAN is important during the preparation and fund allocation processes, but less so during project implementation. An important issue not dealt with here, for lack of information, is the quality of the NPAN. Quality varies widely from country to country, and the plan's use is likely to be quality related.

5.4 Preferred Service Delivery Mechanism

The use of a preferred service delivery mechanism is statistically significant in explaining the variation in disbursement rates for nutrition interventions. This not only confirms part of the study hypothesis but also shows the value of applying institutional economics insights and Hirschman's trilogy to nutrition interventions. World Bank staff can use the preferred delivery matrix developed in Sections 2.4 and 2.6 when preparing nutrition interventions. Although the results indicate significance only on disbursement, this is the first step for service delivery. The service delivery mechanisms used in the Madagascar and Senegal projects are reviewed in Box 5. Both projects also have a positive impact on the target group's nutrition status. The results well justify devoting closer attention to the analysis of comparative advantages between the different institutional options. They also provide a good starting point for discussing division of labor among stakeholders in nutrition (Esman's multi-institutional service networks, Section 2.1). Analyses of strengths and weaknesses are ongoing; the most concrete example at present is the constraints assessment in Bolivia.

Box 5: Preferred Delivery Mechanisms for Nutrition Interventions in Madagascar and Senegal

The Madagascar Community Nutrition project's interventions (child growth monitoring, counseling, food supplementation, and nutrition education) were contracted out to local nongovernmental organizations. The iodine deficiency control program consisted mainly of financing equipment and technical assistance for the private sector (salt iodization) and support for the Ministry of Health regarding policy enforcement of regulation, monitoring, and evaluation. The Ministry of Agriculture executed the third nutrition component, the development of the National Food Security Plan, with technical assistance from the project. According to the matrix developed in the first part of this study, all interventions were delivered through the right mechanism: behavioral change interventions through community-based organizations, salt iodization through the private sector, policy development and regulation through the public sector.

In Senegal, the execution of community-level nutrition interventions was contracted out to small enterprises, made up of urban unemployed youth. The local community was heavily involved in managing the activities, and had to hire the young people before being contracted. This is the contracting-out approach mentioned earlier. It combines the private sector, small enterprises, civil society, and community involvement. The development of the Food Security Program, supported with technical assistance, was designated to the agency. However, the program was not developed as planned, and the pilot was not implemented. Following Matrix (Table 3), the community or civil society should execute the public sector's behavioral change interventions. In actuality, a combination of community participation and private sector involvement provides this project's behavioral change interventions. A recent article on the project argues for the effectiveness of using the private sector (Marek et al. 1999). The sustainability and cost of this approach, however, remain two important but unresolved issues. According to the matrix, the public sector should manage policy development activity. This task, assigned to the project unit, has not been executed.

Source: Project Appraisal Document and Implementation Completion Reports, Madagascar and Senegal Community Nutrition Projects.

5.5 Institutional Capacity and Leadership

The proxy used to indicate institutional capacity—the inclusion or not of institutional development components—is highly significant to nutrition disbursement. Institutional capacity is a key to successful implementation of not only nutrition interventions but also any social intervention. The model predicts an improvement of 28 percent with every institutional capacity-building component included.

This finding supports the need for close attention to institutional development during project preparation. Once nutrition interventions and their preferred delivery service mechanism are identified (Matrix 2, Table 3), institutional capacity is the most critical factor. Institutional development imposes a complementary need to improve institutional analysis of capacity to implement nutrition during project preparation. A recent evaluation of health sector projects by the Bank's Operations Evaluation Department (OED) found that the quality of institutional analysis during project preparation significantly influences project outcome. Improving analysis and including institutional capacity-development interventions is likely to significantly improve project outcomes. Since capacity building in nutrition, and in projects in general, has been largely neglected, little information is available on how to do it (World Bank 1999a, p. 9). Box 6 provides specifics on institutional capacity building in the Madagascar and Senegal projects.

Box 6: Institutional Capacity Building in Madagascar and Senegal

In terms of institutional capacity, the Madagascar project, supporting the development of the Food Security Plan, included technical assistance and training for local staff. It also provided infrastructure (vehicles and information technology) as well as assistance to develop financial and accounting systems. The project management unit included a national director, financial management and accounting units, and technical specialists who received additional training. Providing institutional strengthening of those organizations solved problems regarding the availability of capable nongovernmental organizations in some districts. The project's capacity-building components were found crucial in the final evaluation of the project (World Bank 1999b). However, no exhaustive capacity assessment has been done to improve understanding of either the implementation unit's institutional capacity or the country's stakeholder capacity (public, private, and civil society) to deliver nutrition. This gap should be filled.

The Second Community Nutrition project in Madagascar has recently sent its technical specialists on study tours to Bangladesh and Honduras to learn from experiences there. This form of capacity building affords good opportunities for sharing experiences between countries and provides strong incentives to apply new knowledge.

In Senegal, l'Agence d'Execution des Travaux d'Intérêt Publique contre le Sous-emploi (AGETIP), the agency designated to execute the interventions, had ample experience, but largely with infrastructure projects. AGETIP therefore hired a general manager and technical experts for the nutrition program. The small enterprises received training and other types of capacity-building elements (transport, among others) to make sure they could carry out their activities (World Bank 1995).

The Bank has not defined the key institutional development needs in nutrition, nor has it developed a systematic body of technical knowledge or country experience in the area. In the World Bank, Orbach (1999), Berryman (1998), and Haggarty (1998) have done some work on institutional assessments, varying from political analysis to institutional audits. More nutrition oriented are the constraints assessment done by Levinson et al. (1995) and McLachlan and Kuzwayo (1997) in South Africa, by BASICS (1999) for health managers, and by McGuire and Galloway (2001, forthcoming) in Bolivia. But much more remains to be done.

Leadership, though not dealt with in this study, is found highly significant in the reality of implementing and managing nutrition projects in developing countries.³⁰ Including leadership as a factor would likely improve the accuracy of the model's predictions. However, the project documents reviewed provide too little information on leadership to include in the analysis. Nevertheless, experience in various countries shows that, when a charismatic personality leads the institution responsible for nutrition, political, institutional, and developmental commitment to nutrition activities is much stronger and the likelihood of success higher. Among their common characteristics, these "champions" of nutrition are true advocates for nutrition, highly regarded by all stakeholders, and politically well connected. Esman's criteria for selecting development managers go in that direction, although he promotes political neutrality (1991). He also bases his selections on merit and looks for a combination of specialist and generalist qualifications. A worthwhile exercise would be drawing up a profile for a development manager in nutrition, based on combined insights from development administration and experience in the nutrition field.

³⁰ Anecdotal information from task team leaders, responsible for nutrition projects, and author's personal experience.

5.6 Multisectorality

Nutrition is multifaceted and should be addressed as such, but not necessarily by involving multiple sectors in implementation, the results of the data analysis imply. Multiple sector involvement is not significant for disbursement of funds for nutrition. A possible explanation for this result may be that a multisectoral approach is important during planning and programming, but less so during implementation. It does make sense that during implementation, when decisions have to be made quickly and communications lines should be short, involving many sectors is counterproductive.

This study used only data on central-level approaches and none on local-level approaches. Mason (1999, p. 47) points out an interesting fact regarding the difference between multifaceted implementation of activities at the centralized and local levels:

Multifaceted activities work fine at the village level. It is only when this tries to interface with the sectoral interests of governments, agencies, and NGOs that it starts to fail. Indeed, we sometimes view this multiple nature as a problem for nutrition rather than a blessing—precisely because it can be bureaucratically and politically inconvenient. But the focus should be on the agencies and governments to sort out their bureaucratic issues and avoid bringing the squabbles to impede community actions; not on resource-poor villagers to adapt to artificial fragmentation into sectors.

5.7 Complexity

Some nutrition interventions are complex (multifaceted, high level of training, demanding monitoring and evaluation requirements), but complexity is not a significant factor for disbursement, according to this study. This finding is contrary to the results of a recent World Bank evaluation, where complexity was found to be of major importance to the effectiveness of a project (World Bank 1998, pp. 39–40). The difference in outcome might be due to differences in the way complexity is measured in the two studies. The 1998 study measured the number of objectives and sectors involved and rated as complex projects with many different objectives and sectors. This study measured the complexity of implementation of the intervention itself and rated the project according to that measurement. A possible explanation for the finding may be that more complex interventions receive more attention. A closer look at the data on complexity and nutrition expert time spent on the project does support this explanation. Complex projects receive more nutrition expert time (29 percent) than do less complex projects (18 percent).

5.8 World Bank Commitment

The World Bank's commitment to nutrition interventions, measured as nutrition credit size and nutrition expert time spent on a project, is not found significant for the disbursement rate. However, there is a correlation between disbursement and credit size and time spent by a nutrition expert on the project (Table 6). A project that allocates one third or more on nutrition spent considerably more time following up on nutrition interventions during implementation, 58 percent versus 7 percent. The disbursement

average is also considerably higher, 79 percent versus 46 percent, than in the case of very small credits (<10 percent).

Table 6: Relation Between Credit Size, Expert Time, and Disbursement

<i>Credit size (percent)</i>	<i>Average nutrition expert time spent on project (percent)</i>	<i>Average disbursement on nutrition (percent)</i>
Credit size nutrition > 30	58	79
Credit size nutrition < 30 > 10	16	57
Credit size nutrition < 10	7	46

The data set used may explain the fact that commitment is not significant, but close analysis provides an indication of its importance. The variable used may have been distorted due to incomplete information and the use of consultants/specialists may have been under reported.³¹

5.9 Overall Disbursement Level

The percentage disbursement of the total credit is significant to the disbursement rate for nutrition activities. This confirms the dependence of nutrition interventions when they are only one part of a project. As discussed earlier, stand-alone nutrition projects have very high disbursement rates (94 percent on average). And, as discussed above, the greater the proportion of funds allocated to nutrition in the total credit and the more time spent by a nutrition expert, the higher is the disbursement credit. The greater attention given nutrition interventions during implementation most likely explains this result.

6. Summary and Conclusions

The World Bank has allocated a significant amount in loans (US\$1.8 billion) to nutrition interventions, but they are frequently poorly implemented. This study was undertaken to gain insights into factors affecting implementation in order to increase the effectiveness of nutrition intervention disbursements.

The concern that well-prepared nutrition interventions fail during implementation appears to be justified by the results of this study. Of the funds allocated to nutrition for the 56 projects sampled, only 66 percent was spent.

A review of the available literature was conducted to identify major constraints to implementation of nutrition interventions. Those constraints were analyzed in 56 Bank projects that allocated substantial amounts to nutrition interventions. The disbursement rate was used as the proxy to measure implementation.

According to the results of the statistical analysis, three factors are significant in disbursement for nutrition in World Bank-supported projects: preferred service delivery mechanism; institutional capacity interventions; and overall credit disbursement. Together, they explain 80 percent of the variance in disbursement rates.

³¹ Nutrition consultants may have been used but not reported.

The use of the preferred service delivery mechanism, according to institutional economics application, is found significant to nutrition disbursement. The preferred service delivery mechanism for nutrition (Section 2) draws on insights from institutional economics, the goods characteristics approach, and Hirschman's trilogy of incentives. The matrix resulting from the classification of nutrition services was used as the basis for determining whether or not nutrition services were implemented by the preferred delivery mechanism in the World Bank projects. The results show that using the preferred mechanism improves disbursement rates and confirm the value of using institutional economics insights to identify the preferred delivery mechanism for nutrition interventions.

The institutional capacity of the service delivery agencies is crucial to the success of implementation. In this study, institutional capacity was measured using institutional development components as a proxy. Projects that included institutional development components, for example, training of staff in nutrition, technical assistance, and—most important, policy formulation and programming—disbursed better than those that did not include those components. The model predicts a 28 percent improved disbursement rate with the inclusion of every institutional development intervention.

The use of the preferred mechanism for delivering nutrition interventions according to goods characteristics, institutional economics, and Hirschman's trilogy of incentives, together with institutional development interventions and the disbursement of total credits, explain 80 percent of the disbursement of funds allocated to nutrition in World Bank-supported projects. These findings strongly suggest that these factors should receive more attention in preparing and implementing nutrition interventions.

Some important issues, touched on only briefly in this study, merit further exploration. For example, much more work is needed on the institutional home question for nutrition and the links to the traditional line ministries. The multisectoral nutrition cells of the 1970s did not succeed, but Esman's multi-institutional networks concept offers new ideas worth exploring. The importance of leadership, often found crucial when implementing nutrition interventions, deserves further exploration and analysis. The nutrition community needs more tools to analyze institutional capacity.

The matrix for determining the preferred institution or mechanism to deliver the service, developed here, could serve as the basis. Tools should also be developed for analyzing the institutional capacity of each delivery mechanism (which will differ by country and region). In addition, requirements should be specified for carrying out nutrition activities. Mason has started to analyze the requirements in terms of human and financial resources, and some information is available on people to perform nutrition activities. The study shows that the dearth of knowledge about the institution and functional management needs to be rectified.

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ANNEX A

Typification of Nutrition Interventions

Nutrition components are the activities that allocate resources to training, equipment, supplies, civil works, and other expenditures in support of interventions and programs to address the nutrition status of a vulnerable population. They are described in project and staff appraisal documents (PADs and SARs). All activities and components have been classified under one of the types (table). The typification is based on the characteristics of the services rendered.

<i>Activity</i>	<i>Specific Interventions</i>
Distribution, other than food	Iron tablets, iodine, and vitamin A capsule distribution; first aid kits. Includes overhead.
Food fortification	Iodine, iron, and vitamin A. Includes credits to private sector, e.g., to improve process
Food distribution	Complementary feeding, school feeding, infant feeding. Includes overhead.
Food stamp distribution	Food coupon distribution
Planning, policy and programming	National Plan assistance; policy and planning strengthening; monitoring and evaluation
Research	Studies, research, surveys, tests
Technical assistance	Consultants, international and national; consultant agencies; other donor technical assistance financed by the project
Public sector staff training	Training courses, workshops and materials for staff
Infrastructure development	Equipment, vehicles, infrastructure
Behavioral change	Growth monitoring and promotion; information, education, and communication; nutrition education; community gardens; training community workers (not public sector personnel); breast-feeding promotion; local weaning food production

Note: Much of what is called institutional development in projects falls under infrastructure development, staff training, and technical assistance.

ANNEX B

Schedule of Service Delivery Types and Institutional Options

<i>Activity</i>	<i>Intervention</i>	<i>Service delivery type</i>	<i>Institutional option</i>
Distribution, other than food	Iron tablets, iodine and vitamin A capsule distribution, first aid kits	1	Market/private sector
Food fortification	Iodine, iron and vitamin A fortified foods. Includes credits to private sector for improving process.	1	Market/private sector
Food distribution	Complementary feeding, school feeding, infant feeding	1	Market/private sector
Food stamp	Food coupons, stamps	4A	Public sector
Planning, policy, and programming	National Plan assistance; policy development and criteria development for quality and monitoring and evaluation	4A	Public sector
Monitoring and evaluation	Monitoring and evaluation	3A	Private sector
Research	Studies, research, surveys, tests	3A	Private sector
Technical assistance, other than policy	Consultants, international and national; other donor technical assistance financed by project	3A	Private sector
Public sector staff training	Training courses, workshops and materials for staff	3A 4A	Private-Public partnership
Infrastructure development	Equipment, vehicles, infrastructure.	1	Market/private sector
Behavioral change	Growth monitoring and promotion; information, education, and communication; nutrition education; community gardens, community worker training.	3B	NGO/civil society

NGO nongovernmental organization

ANNEX C

Classification of Nutrition Interventions, by Complexity

Component complexity of 4 or less is considered not complex; 5 to 8 is considered medium complex; higher than 9 is considered very complex.

<i>Classification</i>	<i>Interventions/activities</i>	<i>Complexity grade (low to high)</i>
Distribution, other than food	Iron tablets, iodine and vitamin A capsule distribution; first aid kits	1—Low. Usually can tag on to existing deliveries and mechanisms, reasonably manageable to set up.
Infrastructure development	Equipment, vehicles, infrastructure	1—Low. Can be included in the larger infrastructure component, part of the project, Bank’s comparative advantage and experience.
Research	Studies, research, surveys, tests	1—Low. Usually contracted out
Technical assistance, other than policy	Consultants, agencies, other donor technical assistance. Assistance to private sector.	1-Low. Reasonably manageable
Food fortification	Iodine, iron and vitamin A fortified foods	2—Medium. Analytical work needed beforehand. Requires agreements, public and private sector; extensive monitoring and evaluation; and legal systems, including food safety.
Public sector staff training	Training courses, workshops and materials for staff	2—Medium. Entails logistical problems, motivation creation, time issue, inclusion in existing curriculum.
Food distribution food	Complementary feeding, school feeding, infant feeding	3—High. Involves logistical needs, food safety issues, extensive delivery systems, monitoring and evaluation.
Food stamps	Food stamps, coupons	3—High. Well-developed administrative capacity needed.
Planning, policy, and programming	National Plan assistance; policy and planning strengthening, monitoring and evaluation	3—High. Needs “champion,” policy commitment. Requires long-term vision, intensive staff time, great commitment .
Behavioral change	Growth monitoring and promotion; information, education, and communication; nutrition education; community gardens; community worker training.	4—High. Puts high demands on staff time, in duration and intensity. Makes high and creative training demands. Requires community participation. Poses sustainability issues.

ANNEX D**World Bank Projects Reviewed**

<i>Country</i>	<i>Fiscal Year</i>	<i>Project Name</i>
Benin	1989	Health Services Development Project
Bolivia	1989	Integrated Health Development
Bolivia	1990	Social Investment Fund (SIF) Project
Brazil	1976	Nutrition and Development Project
Brazil	1984	Second Health Project
Brazil	1986	Northeast Basic Health Services Project
Burkina Faso	1985	Health Services Development
Chad	1990	Social Development Action Project
Colombia	1978	Integrated Nutrition Improvement Project
Colombia	1986	Health Services
Colombia	1990	Community Child Care and Nutrition Project
Dominican Republic	1991	Primary Education Development Project
El Salvador	1991	Social Rehabilitation Project
The Gambia	1990	Women in Development
Ghana	1986	Health and Education Rehabilitation Project
Guatemala	1993	Social Investment Fund Project
Guinea	1988	Health Services Development Project
Guyana	1992	SIMAP/Health, Nutrition, Water and Sanitation
Haiti	1991	Economic and Social Fund
Honduras	1991	Social Investment Fund Project
Honduras	1992	Second Social Investment Fund Project
India	1980	Tamil Nadu Integrated Nutrition Project
India	1990	Second Tamil Nadu Integrated Nutrition Project
India	1991	Intregrated Child Development Services Project
India	1992	Child Survival and Safe Motherhood
Indonesia	1977	Nutrition Development Project
Indonesia	1986	Second Nutrition and Community Health Project
Indonesia	1985	Second University Development Project
Jamaica	1977	Second Population Project
Jordan	1986	Primary Health Care Project
Madagascar	1993	Food Security and Nutrition Project
Malawi	1983	Health Project
Malawi	1987	Second Family Health Project
Mali	1991	Second Health, Population and Rural Water Project
Mexico	1991	Basic Health Care Project
Morocco	1985	Health Development Project
Morocco	1990	Health Sector Investment Project
Mozambique	1989	Health and Nutrition Project
Mozambique	1993	Food Security and Capacity Building Project
Niger	1992	Population Project
Nigeria	1985	Sokoto Health Project
Nigeria	1989	IMO Health and Population Project
Pakistan	1983	Population Project
Peru	1983	Primary Health Project
Philippines	1989	Health Development Project
Sri Lanka	1991	Poverty Alleviation Project
Tanzania	1990	Health and Nutrition Project
Thailand	1978	Population
Togo	1991	Population and Health Sector Adjustment Program
Tunesia	1981	Health and Population Project
Tunesia	1991	Population and Family Health Project

Turkey	1989	Health Project
Uganda	1990	Poverty Alleviation
Venezuela	1991	Social Development Project
Yemen	1990	Second Health Development Project
Zambia	1991	Social Recovery Fund