Economic Analysis of Policy-Based Operations: Key Dimensions

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PREFACE

This volume is the result of an Asian Development Bank (ADB) Economics and Research Department (ERD) study: *Good Practice Analysis in Support of ADB's Policy-Based Lending*. It addresses various aspects of analysis and preparation of policy operations. Issues covered include understanding the macroeconomic context of sector policy reform operations using a macro-meso-micro perspective, sector analysis with emphasis on price policy and the institutional context, analytical approaches for assessing the impact of policy change including poverty impact assessment and political economy considerations of reform costs, and design considerations for ADB policy-based loans.

Working papers prepared by the Economic Analysis and Operations Support Division (EREA) are frequently cross-referenced: *Policy-Based Lending and Poverty Reduction: An Overview of Processes, Assessment, and Options* (Bolt and Fujimura 2002) and *Toward a Political Economy Approach to Policy-Based Lending* (Abonyi 2002). Both are part of the ERD working paper series. It is hoped that the works, combined, will contribute toward improving ADB's operations through better practice in policy analysis.

This volume was prepared by Richard Bolt, Manabu Fujimura, Cindy Houser, Franklin De Guzman, John Weiss, and Frederick Nixson, with support from Xianbin Yao (Assistant Chief Economist, EREA, ERD) and David Edwards (Director, Operations Evaluation Division 2). The following ADB staff reviewed and provided valuable comments on the draft paper: Douglas Porter, Stephen Curry, David Green, Christopher Edmonds, Peter Choynowski, and Chia-Hsin Hu. The paper is intended primarily for use by ADB staff but may be of interest to others engaged in development assistance.

The opinions and views expressed in the paper are those of the authors and not of ADB.

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ABBREVIATIONS

ADB   Asian Development Bank
ADTA   advisory technical assistance
AIC   average incremental cost
BAS   Bureau of Agricultural Statistics
CGE   computable general equilibrium
DMC   developing member country
ERD   Economics and Research Department
EREA   Economic Analysis and Operations Support Division
ERIMU   education reform implementation monitoring unit
ESDP   Education Sector Development Program
ESW   economic and sector work
FDI   foreign direct investment
GSDP   Grains Sector Development Program (Philippines)
IFI   international financial institution
IMF   International Monetary Fund
kWh   kilowatt-hour
M&E   monitoring and evaluation
MTFF   medium-term fiscal framework
MWh   megawatt-hour
NFA   National Food Authority
NPC   National Power Corporation
O&M   operation and maintenance
OED   Operations Evaluation Department
PAM   policy analysis matrix
PBL   policy-based lending
PIA   poverty impact assessment
PPSRP   Philippines Power Sector Restructuring Program
REC   rural electrification cooperative
RRP   report and recommendation of the President
SAM   social accounting matrix
SDP   sector development program
SME   small- and medium-sized enterprise
SOE   state-owned enterprise
SSE   senior secondary education
T&D   transmission and distribution
TA   technical assistance

In this report, "$" refers to US dollars, unless otherwise stated.

GLOSSARY

Advisory Technical Assistance (ADTA). Advisory support that may include training, which is usually extended in a sector- or economy-wide context for institution building. It usually assists a country in establishing and strengthening institutions; in preparing national and/or sector development plans and programs; and in carrying out sector, policy, and issues-oriented studies.

Economic Internal Rate of Return (EIRR). Rate of return achieved on all project resource costs measured in economic prices; for a project to be acceptable, the EIRR should be greater than the economic opportunity cost of capital.

Economic and Sector Work (ESW). A stand-alone effort that deals with broad and specific economic, sector, and thematic, issues. Economic work covers mainly macroeconomic issues, country strategy studies, or special studies that cut across sectors. Sector work covers issues that are technical, financial, economic, institutional, social, or managerial in nature. ESW is set in a medium- to long-term context and aims to contribute to: (i) deeper understanding of economic and sector issues, and (ii) the fashioning of appropriate strategies and instruments to strengthen economic management and sector capacities. ESW is also referred to as sector analysis work.

Financial Internal Rate of Return (FIRR). Rate of return achieved on all project costs, where all costs are measured in financial prices and benefits represent the financial revenues that would accrue to the main project participants.

Program (or Project) Performance Audit Report (PPAR). Study that evaluates the effectiveness of the program (or project) in achieving its intended objectives. It includes an analytical commentary and an audit of the adequacy and integrity of the previous program (project) completion report. It focuses on specific issues meriting close attention and analyzes the causes of any deviations.

Project Preparatory Technical Assistance (PPTA). Aid to carry out feasibility studies or detailed engineering studies for a proposed project, or to develop a pipeline of projects suitable for financing, or to conduct a sector review to identify sector issues to be addressed by a project or program, or a master plan.

Report and Recommendation of the President (RRP). Program or project loan proposal submitted to the ADB Board of Directors and providing adequate information for it to make a decision on the proposal.

Technical Assistance (TA). Financial aid to facilitate the flow and efficient utilization of development finance to developing member countries and to enhance their development capacity. It is also used to foster regional cooperation through assistance in the preparation of regional studies and conduct of seminars, conferences, etc.

OVERVIEW

Introduction

Policy-based lending to support policy reform is a necessary development instrument. Support for sector policy reform is the main focus of policy-based operations of the Asian Development Bank (ADB), addressing economy- or sector-wide causes of structural constraints and under-performance.

Two key characteristics of policy change arise. First, policy changes alter the underlying framework influencing stakeholders' behavior. Their response to changes must be taken into account in policy analysis. Second, removal of a policy-related constraint gives rise to another limitation that becomes the next "binding constraint." In this sense, policy reform is a process of removing sequential binding constraints.

The features of policy reform need comprehensive analysis. Policy change is also a dynamic process, and to be effective built-in flexibility in design and implementation is needed involving stakeholders. The evolving nature of reforms requires that ex-ante analysis be supplemented with monitoring and evaluation of the policy change process.

The Macroeconomic Context of Sector Policy

Policy analysts need to understand the macroeconomic context for policy-based operations to ensure the consistency of sector policy changes within the macroeconomic policy framework. A macro-meso-micro perspective can help in comprehending the forward and feedback effects of sector policy changes.

An appreciation of the macroeconomic context and the mesoeconomic channels through which sector policy changes are carried out helps identify key influences on sector policy. The macroeconomic context, such as growth, inflation, unemployment, and the balance of payments, and key macroeconomic variables, such as interest rates, money supply, and foreign exchange rates can greatly influence the outcome of sector policy reforms. For example, vulnerability to external change and crises can trigger system-wide policy changes and affect the outcomes of structural and sector reforms. Similarly, sector reforms can have feedback effects on the macroeconomy.

Although macroeconomic assessment is country specific, a consistent approach to assessment is needed to understand:

- economic growth performance;
- macroeconomic policy and management;
- key structural policies;
- economic outlook; and
- macroeconomic framework including risks or vulnerabilities.

Policy analysts need to carry out a country-specific assessment and analyze how macroeconomic influences, working through markets and institutions at the economy's mesoeconomic level, affect decisions and incentives by consumers and producers at the microeconomic level.

Dimensions of Sector Policy Analysis

Sector analysis underpins ADB's policy operations and is needed to understand policy, institutions, and investment issues that affect sector performance. Sector analysis helps to assess:

- sector role and features;
- markets, prices, and the incentives structure;
- government strategy and policies, reform agenda
- key public institutions, performance, problems and underlying causes;
- market and institutional performance, problems and underlying causes;
- solutions, reform and investment needs;
- the rationale for public sector and ADB involvement, and alternative approaches;
- timing and sequencing of reforms and development activity; and
- political economy considerations.

Analysis of market structure, conduct and performance including price policy issues are important, given their impact on economic and financial incentives and on the behavior of affected stakeholders, public finances, and trade.

Institutions include public service providers, market institutions, and the "rules of the game." Analysis of such issues will help to identify constraints facing consumers and users, producers and providers, how they affect incentives and response, and opportunities for improvement.

Analysis of institutional structure, conduct and performance provides insights into factors that affect policy implementation and impact. This includes understanding the implementation capacity of public and private institutions to effect policy reform. Reforms involving institutional capacity building usually require a medium- to long-term view, and the time and resource requirements should be factored into the analysis.

The political economy context affects policy formulation, timing, reform acceptance, and implementation. Full awareness is needed of the political environment, a country's policy priorities, trade-offs involved, and the stance of affected stakeholders. This includes identifying the views of those who will gain from the reforms, and of the vested interests who will lose from reforms and who prefer to maintain the status quo.

Assessing the Effects of Policy Change

Policy change can be analyzed ex ante in different ways with various levels of rigor. Analysis may be limited by practical considerations such as data availability, cost of collection, and human resource capacity.

Key considerations and analytical options are as follows:

- The starting point is to understand the "without program" situation. Sector studies can provide much of the framework and data, and can potentially employ a range of macro, meso, and micro analyses, depending on the type of policy changes and strength of likely feedback effects.

- Advanced assessments of policy options and the effects of the "with program"

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situation based on deductive reasoning may be checked by empirical verification. Where data are limited and collection impractical, valid and verifiable assumptions need to be clearly presented to allow monitoring and evaluation during implementation.

- Policy analyses and simulations, where practical, can identify short- and medium-term effects of policy change. General equilibrium analysis is useful if there are significant feedback effects that need to be identified and assessed. Partial equilibrium analysis is useful where feedback effects are low. When equilibrium analysis is not possible, descriptive statistics and provisional calculations should be used to understand sector parameters and possible responses.

Assessing the Poverty Impact of Policy Change

An analytical framework used by ADB for the poverty impact of policy change, the poverty impact assessment matrix, identifies the main channels of effect through which the poor are affected, assesses if the impact is direct or indirect, and outlines the distribution implications between poor and other affected groups. The poverty impact assessment framework is best used as a design tool as part of analytical work.

Assessing the Processes and Costs of Policy Change

Understanding is needed on the processes of cost and benefit realization of policy change as a complement to quantitative analysis of its effects. This will help establish whether reforms are feasible from

the stakeholders' viewpoint, including how they will be affected, whether they can adjust to change, and how they will adjust.

Assessing the policy change process involves four key dimensions of adjustment:

- Time: Policy change involves restructuring that often occurs over the medium to longer term. Policy change effects need to be considered in dynamic, not static, terms.

- Distribution: The distribution effects of reforms need systematic assessment to identify who the gainers and losers will be as the adjustment process unfolds.

- Political economy: Given the time and distribution effects, the groups affected can be identified and their views canvassed on reform support—or opposition and why. The strength of vested interests compared with that of reformers should be assessed. The need for possible compensation for groups negatively affected during the adjustment process can be assessed and built into the program's design and costs.

- Development implications: Often, reform measures will have direct linkages to development efforts, such as institutional reforms and related capacity-building needs, and complementary investments. The link between reforms and complementary development efforts should be established to increase the likelihood of sustaining the reform effort.

The government will have to shoulder any fiscal impact of reforms. Reforms should be considered in the context of the prevailing fiscal situation and their impact

on the future framework through analysis of national or local medium-term fiscal frameworks.

Incorporating Policy Change Assessments into Program Design

The final, essential step for policy analysts involves incorporating the results of analysis into program design.

The analysis helps inform decision makers and affected stakeholders of options and their possible outcomes. A basic requirement of successful reform implementation is that these groups reach a shared understanding of the nature, costs, and dimensions of policy changes. Summary matrixes used in ADB loan documents help highlight key analytical and design points.

The policy matrix, forexample, can be considered as a road map for government commitment on specific policy actions to ensure that the reform implementation is on the right track. The emphasis of the policy measures in the matrix should be on milestones and key actions. Clear linkages between the poverty impact assessment framework, program logical framework, and policy matrix help ensure consistency between the analysis and design.

Monitoring and evaluation during and after reform implementation should supplement practical policy analysis as part of program design. This will also help in overcoming the inherent risks and uncertainties of up-front analysis and in putting policy reforms into effect.

CHAPTER I

INTRODUCTION

The current approach of the Asian Development Bank (ADB) to program lending[1] was introduced in 1987. The approach adopted signified a shift from the financing of imported inputs aimed at increasing capacity utilization to an emphasis on sector policy reforms to facilitate growth and development. Over the period 1987–2002, ADB supported 136 programs loans, accounting for 21% of the cumulative total of all loan approvals. Throughout, ADB carried out periodic reviews of program lending performance.[2] The reviews show that policy-based lending complements project financing and is a necessary development instrument. However, analyses in support of ADB policy-based operations indicate scope for further improvement in their relevance and effectiveness.

In 2001, ADB's Operations Evaluation Department (OED) completed a special evaluation study of program lending, identifying several key aspects of program design and implementation needed to achieve successful outcomes (ADB 2001). These include: first, the need for sufficient

sector diagnosis to understand the contextual concerns of policy changes; second, improved ex-ante assessment of likely impacts of policy reforms and related analysis of the adjustment and related costs; and third, the requirement for institutional capacity building, before, during, and after the implementation phase of policy reform.

Policy changes relate to market and institutional reforms and address the economy- or sector-wide causes of structural constraints and under-performance. This has two key implications. First, since these reforms alter the underlying framework that governs the behavior of different stakeholders, stakeholders' responses to policy changes must be taken into account in policy analysis. Second, once a policy-related constraint is removed, another limitation becomes the next "binding constraint." In this sense, policy reform involves a process of removing sequential binding constraints. So, the various features of policy reform present a challenge and demand careful and comprehensive analysis.

Understanding of the nature and dynamics of policy change and institutional reform has evolved over time. The literature indicates the different stages in this evolving process in terms of the "generations" of reforms (Brinkerhoff and Crosby 2002). Broadly, first generation reforms include macroeconomic stabilization and parametric policy changes such as price liberalization. Structural policy and underlying market and institutional changes are the second generation. The approach to policy-based lending is also changing. Issues such as civil

[1] Program lending incorporates ADB's present lending modalities of program loans, sector development program loans, and cluster program loans. The term "program lending" refers to ADB's support for developing member countries to carry out a program of policy reforms and institutional changes. However, program lending modalities have evolved to include projects with policy and knowledge product components that often address policy issues. This volume uses the term "policy operations" and "policy-based operations" for policy-related lending and nonlending activities.

[2] ADB. WP 2-90: A Review of the Bank's Program Lending Policy, March 1990; R143-96: Review of the Bank's Program Lending Policies, July 1996; and R210-99: Review of ADB's Program Lending Policies, November 1999.

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participation and country ownership are becoming essential elements of policy-based operations. This evolving understanding reinforces the need for more systematic policy and institutional analysis.

Recognition that policy reforms often involve a dynamic process indicates the need for a flexible built-in mechanism in design and implementation, with involvement of affected stakeholders. It also highlights the fact that the principles and good practices of sustainable policy reform are still evolving and have a strong learning content. So, from the policy analysis standpoint, the ex-ante analysis needs supplementing with effective monitoring and evaluation during and after the policy changes.

The present study provides a systematic exposition of key aspects of the economic analysis of policy operations for practitioners. It continues the operations-related research of ADB's Economics and Research Department (ERD) to address the above policy analysis concerns as they relate to operations (see Bolt and Fujimura 2002, Abonyi 2002). The study emphasizes the *relevance* and *feasibility* of policy changes (Abonyi 2002). *Relevance,* in this context, refers to the responsiveness of policy changes to specific characteristics of development issues in a country or sector setting. *Feasibility* refers to designing a policy change to be consistent with the specific context and prevailing circumstances, including its likelihood of contributing to improved country performance. It draws on policy operation practices within ADB and elsewhere,[3] and contains case studies that help illustrate ways to conduct policy analysis. The focus is on issues common

to all sectors, rather than on individual sectors.

Chapter 2 begins by providing a macro-meso-micro perspective and emphasizes the importance of understanding the macroeconomic context for policy-based operations. This is to ensure the consistency of sector policy changes within the overall macroeconomic policy framework. Chapter 3 addresses the sector diagnosis that underpins policy operations and stresses the comprehensive sector diagnosis on issues relating to policy, institutions, and investment as the basis for preparing program lending. The linkage between reform and development is discussed. Key aspects of market and institutional reforms are elaborated upon. Issues of timing and sequencing of policy changes and the political economy of reforms are discussed.

Chapter 4 outlines analytical approaches and tools for assessing policy reform and highlights how they can be appropriately applied with regard to issues such as feedback effects, data availability, and human resource capacity. Chapter 5 focuses on the poverty impact and distribution implications of policy changes, and discusses current refinements in ADB

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[3] The background analysis to the paper draws on a variety of materials: (i) an in-depth examination of 10 program loan reports or reports and recommendations of the President (RRPs) (see Appendix 1); (ii) examination of the approaches to adjustment cost estimation from 30 other RRPs; (iii) the special evaluation report by OED (ADB 2001); and (iv) ADB policy reviews on program lending. It also draws on discussions with ADB staff and consultants. In addition, reference is made to the relevant work from other international agencies, especially the International Monetary Fund (IMF) and the World Bank.

practice. Chapter 6 brings intertemporal and distribution aspects together to help understand the costs of reform and political economy considerations.

Chapter 7 addresses the implications of analytical dimensions for program loan design, including the need to build internal coherence between ex-ante impact analyses, the program logical framework, and the program policy matrix; the importance of monitoring and evaluation; and issues in loan release conditions.

The study emphasizes practical and systematic ex-ante analysis of policy reform in terms of context, process, and outcomes, rather than the implementation of policy operations. It also recognizes the existence of methodological and data limitations for such ex-ante analysis. This recognition stems from the uncertainty prevailing in the policy reform process. The range of analyses presented should be carried out not just in the context of program loan processing, but also as part of ADB's regular country and sector policy and institution studies, country strategies, country economic reports, and other economic and sector work.

CHAPTER 2

THE MACROECONOMIC CONTEXT OF SECTOR POLICY

- Macro-Meso-Micro Framework
- Importance of the Macroeconomic Context
- Scope of the Macroeconomic Assessment

A. Introduction

Policy reforms supported by ADB, with the exceptions of "crisis" loans, operate primarily at the mesoeconomic level of the economy. This is where the incentive structures faced by economic agents at the microeconomic level are determined by market mechanisms and related institutions. The functioning of markets is governed by an intricate web of institutional arrangements that support economic transactions. Understanding the interrelationship between the macro-, meso-, and microeconomic levels is important for three reasons: First, macroeconomic policy decisions—especially those made in the face of exogenous shocks and that are channeled through the mesoeconomic level to households and firms—can alter the costs and benefits of a reform program. Second, macroeconomic crisis is often triggered, or at the least, exacerbated by meso- and micro-level problems that highlight the need for sector reforms. Third, structural and micro-level reforms can have macroeconomic feedback effects, such as the effect on relative prices and underperforming institutions, which can affect the costs and benefits of the reform program.

This chapter briefly sets out a macro-meso-micro framework for organizing the discussion, reviews the importance of the macroeconomic context in policy analysis, and identifies the scope of macroeconomic assessment.

B. Macro-Meso-Micro Framework[4]

A useful framework for visualizing sector policy work is one that shows how the mesoeconomic level of the economy provides a link between the macro- and microeconomic levels. A stylized picture of the process is illustrated in Table 1. This framework shows that the particular characteristics of an economy's performance are determined at the following levels:

- **macroeconomic**, through the fiscal, monetary, and exchange rate policies that are relatively flexible tools for short-run aggregate demand management;
- **mesoeconomic**, through the institutions where policy measures may entail a longer gestation period, and through more easily alterable market regulations, taxes, and subsidies; and
- **microeconomic,** which are only indirectly influenced by the government, especially in market economies.

Analysis of the macroeconomic level deals with the highest level of aggregation among markets, including goods, services, assets, and labor. The interactions determine the equilibrium levels of several aggregate variables, including price level, real output, real interest rate, real wage rate, employment, and exchange rate.

At the other extreme, the most disaggregated analysis focuses on the microeconomic level of economic agents. At this level, the household is the fundamental agent that, in maximizing its own welfare, incurs costs of and garners benefits from given economic activity. Households decide between work and leisure, savings and

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[4] The framework outlined here is a modified version of that presented in Demery et al. (1993), pp. 4–8.

TABLE 1: Links between Macro-Meso-Micro Levels

	Macroeconomic	Mesoeconomic	Microeconomic
Focus	Economic growth Inflation Unemployment Exchange rate	Most ⟵⟶ Least aggregation aggregation Relative prices Resource and income distribution Market structure and conduct	Household welfare Work/leisure Firm's profits Expectations Investment decision

Level of Aggrega-tion	Aggregate demand (consumption plus investment plus net exports)
	
	Aggregate supply (function of resources and technology)
		Sector Markets:
		Goods & Services
		• Agriculture
		• Industry
		• Private and public services
		Assets
		• Financial assets
		• Land and property
		• Durable goods
		Labor
		• Unskilled
		• Skilled
			Individual/household
			  - Utility function
			
			Firm
			  - Production function
			  - Profit function

Parameters and Policies	Economy-wide resource situation and constraints Fiscal, monetary, and exchange rate policies	Governance and standards Customs, rules, and behavioral norms Enabling legal and regulatory environment, rules Institutions, services, and infrastructure Sector-specific and targeted taxes and subsidies Technology, comparative advantage	Household and business resource situation and constraints Broad-based taxes and transfers
Example of Feedback Effects	1. Reduce fiscal deficit through tax increases ⟶ 6. Changes in level of aggregate output ⟵	2. Higher commodity prices ⟶ 5. Lower levels of sector outputs delivered to the market ⟵	3. Reduced consumption of these commodities ↓ 4. Cutback in supply by firms in face of decreased demand

Source: Macroeconomics and Finance Research Division/EREA staff, Asian Development Bank.

consumption, and respond to changes in prices and expectations in accordance with budget constraints. For their part, firms are essentially composed of individuals who produce goods and services. Key decisions made by firms depend largely on changes in prices and expectations, including investment decisions on physical capital and technology.

Between these two extremes lies the mesoeconomic level where prices are determined and agents exchange goods, services, assets, and labor. The level of aggregation can be thought of as flexible along this spectrum. By successively disaggregating markets according to characteristic, region, and time horizon, one moves down along the spectrum toward a progressively more micro-economic level of analysis.

An economy is not a static phenomenon but a constant flow of activities continually buffeted by exogenous events. Many events are too small to have a measurable impact on the wider economy and can be studied within a partial equilibrium framework. However, systemic changes can be thought of as occurring at the macroeconomic level of analysis, resulting in changes in aggregate economic activity. These then feed back through the whole economy, requiring consideration through a more general equilibrium framework.

Conversely, sector- and meso-level reforms can have feedback effects from the micro level to the macro level, through market mechanisms and institutions. Table 1 shows an attempt to achieve fiscal balance through tax increases that may be passed on to consumers in the form of higher commodity prices. Price signals, in turn, may reduce consumption of these commodities. A decrease in demand for affected goods may force firms to cut back supply, which then feeds back to the macro economy through lower levels of sector outputs delivered to the market. The extent of the changes in aggregate output depends on how

effectively these changes are transmitted or filtered out by market and institutional factors at the meso-economic level. Analysis of the effectiveness of such mesoeconomic filters helps in understanding the macro and micro impacts of reforms, and requires close study of the mesoeconomic conditions that determine how macro-level policies are translated into micro-level incentives (Zezza and Llambi 2001).

C. Importance of the Macroeconomic Context

Since most of ADB's policy operations take place at the mesoeconomic level, the possibility of major changes in macroeconomic conditions that can alter an operation's benefits and costs should be considered. For example, a change in the strength and character of medium-term economic growth or in key macroeconomic prices such as the exchange rate can have implications for the viability of a project that supports export growth, or for the valuation of a state-owned enterprise (SOE) to be privatized under a policy operation. Furthermore, as international trade in goods, services, assets, and labor assumes more importance in the domestic economy, economic interdependence can create new opportunities for economic growth as well as new challenges. Exogenous shocks, or the need to adjust to them, may impose higher costs through, for example, rising rates of interest or higher costs of imported inputs and domestic prices for reasons such as currency devaluation or increasing commodity prices. Such instability may increase uncertainty, choking off

investment and slowing the reform process. For example, a fall in the rate of growth of world trade may adversely impact on export prospects with negative feedbacks for agriculture sector reforms. Overall, various outcomes are possible, which underscores the need to understand the macroeconomic context and how it affects the meso and micro levels.

While changes in macroeconomic conditions are difficult to predict, the risks to the policy operation should be assessed if there is evidence of an unsustainable trend, particularly in macroeconomic policy, or if the economy is thought to be vulnerable to external shocks. So, it is necessary to understand past macroeconomic trends and to be able to realistically assess future prospects. Recent examples in ADB operations (Appendix 1), where the macroeconomic context has mattered greatly to the outcome of reform programs, include the following:

- rapid monetary expansion triggered high inflation that eroded balance sheets of commercial banks, subsequently undermining financial sector reforms (LAO: Second Financial Sector Program);
- stabilization and fiscal restraint measures reduced expenditures and reforms in the social sector, that, in turn, hampered transition to a new pension system (KAZ: Pension Reform Program);
- the regional financial crisis reduced economic growth and financial inflows, delaying the implementation of SOE reforms and increasing SOE welfare losses (VIE: State-Owned Enterprise Reform and Corporate Governance Program); and

- the global economic slowdown in 2000–2001 reduced the pace of financial and corporate sector reforms in Asia's crisis-affected economies while increasing nonperforming loans (INO: Financial Governance Reforms).

Other considerations emphasize the importance of understanding the macroeconomic context for sector-level policy operations. For example, a severe macroeconomic crisis or major changes in the political system can underscore the need for structural changes at the mesoeconomic level. Where several major macroeconomic and structural policy changes are under way, it can be difficult to predict the economy's response to a further policy change. Assessment of the costs and benefits of a given policy measure in order to gauge the appropriate shape or sequence of policy changes would be needed. Here, it is important to consider the degree to which the policy regime, and the structural characteristics of the economy, are in a state of change, in terms of both speed and direction.

Even for a straightforward investment project, cost-benefit analysis can be difficult if the project is undertaken during a period of great economic stress or rapid structural transformation. The analytical challenge can be more difficult still in policy operations aimed at systemic changes that will alter aggregate economic activity. These may alter the mesoeconomic structure and, in turn, affect the macroeconomic phenomena that arise from exogenous shocks, with the result that observed market behavior and the path of economic development may change. The economic analysis of such

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policy operations demands analytical rigor because the time horizon may be long (especially for benefits). Also, the analyst must identify and quantify the linkages through which these effects occur. For example, relative price changes can occur that trigger dynamic shifts in resource allocation, spreading costs and benefits beyond the originating sector and affecting aggregate levels of prices and output.

Similarly, institutional reforms can impact on, for example, revenue collection arrangements and the content and approach to expenditures. The effects of decentralization are a case in point. Depending on the nature and size of the impact, this can change the overall fiscal balance, with possible implications for the macroeconomy.

So, an understanding of the macroeconomic context is essential for sector-level policy operations. This helps in designing the appropriate package of policy changes, by identifying the channels through which the impacts of changes arise, and by assessing the sensitivity of the cost-benefit analysis to these changes.

D. Scope of the Macroeconomic Assessment

To the extent possible, the identification of major macro-meso-micro economic linkages should be done as a part of the macroeconomic assessment.

Aspects that need to be covered in discussing the macroeconomic context include the following "checklist" items:[5]

- review of the **economic growth performance**, including key events or trends in the markets for goods, services, assets, and labor;
- assessment of the **macroeconomic management performance**, including fiscal, monetary, and exchange rate indicators;
- review of the major **structural policies** or characteristics governing market behavior, with coverage tailored to the particular policy reform context, but including trade, financial, investment, commercial, and labor policies;
- provision of an **outlook for economic performance** over the relevant program period; and
- assessment of the overall **macroeconomic framework**, including explicit identification of macroeconomic factors, linkages, and assumptions.

Specific issues and questions within these aspects are as follows.

1. Economic Growth Performance

- What is the country's level of economic development?
- What is the character of recent economic performance (real GDP growth)?
- Is growth steady, concentrated, or variable across sectors?
- What are the sources and uses of savings?
  Answers to these questions can provide insights into the strength of an economy. For example, the character of investment can give an indication of the health of the

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5   Appendix 2 provides some key lessons as to how discussion of the macroeconomic context and its integration into the analysis of a policy operation can be improved, as well as providing the basic macroeconomic indicators used to support the assessment.

private sector. If a vibrant private sector is important to a policy operation, the analysis should take a closer look at the sector's performance. The analysis should also compare investment as a share of GDP relative to other countries with similar levels of per capita GDP and look at its breakdown into public and private investment. Additionally, the analysis should look at the proportion of investment that domestic savings finance and the extent and magnitude of foreign investment. The analysis should also check whether investment is concentrated in one sector or diversified.

2. Macroeconomic Management Performance

- Does the country enjoy macro-economic stability?
  Such stability is always a prerequisite for successful reform programs. For example, high and increasing inflation is usually a warning of instability, and is often preceded by a rapidly depreciating exchange rate and a rapidly growing money supply. Indications of instability suggest that a closer look at the health of the financial system is warranted.
- How likely is a future episode of macroeconomic instability?
  The presence of an independent and credible monetary authority, with a clear monetary goal and a monetary target appropriate to that goal, reduces the risk of future instability. Further, a weak or underdeveloped

banking sector may limit the ability of the central bank in economic policy making.
- Is government finance sustainable, or are large deficits crowding out private investment, causing inflation and building up public debt?
  Large deficits may trigger fiscal austerity measures, unless they are covered by official development assistance. If fiscal targets are ambitious or there is extensive off-budget spending, then it is important to know what changes in fiscal policy, such as cuts in expenditures or additional borrowing, will be made.
- How does government revenue compare, as a share of GDP, to that in other countries with similar per capita incomes?
  Very low levels of revenue, often dominated by trade taxes, may indicate that, with trade liberalization, structural changes in the taxation system will change business conditions and relative prices.
- Are there any indications of instability in the balance of payments?
  A high current account deficit is often indicative of growth. However, a deficit that is rapidly rising as a share of GDP and is financed by short-term capital inflows may be a sign of future risks.
- What is the exchange rate regime?
  Although a fixed exchange rate is prone to becoming misaligned, a floating exchange rate is often volatile, leading to pressures for central bank intervention.

CHAPTER 2

3. **Structural Policies**

- What are the major elements of trade policy?
Factors to consider include the country's affiliation to international trade bodies and its commitment to trade and capital account liberalization.
- What are the major elements of investment policy?
The rules governing foreign investment can affect the attractiveness of foreign investment relative to domestic investment.
- Are there other structural policies or characteristics relevant to the policy operation?
For example, labor law and the functioning of the labor market are often important aspects to consider where investment climate and competitiveness are the focus of reform.

4. **Outlook for Economic Performance**

- What is the development outlook for the country?
This should include a discussion of medium-term prospects. Such a discussion can help inform progress with the reform agenda, including projections for indicators that will be used for monitoring reform program performance.

5. **Macroeconomic Framework and Linkages**

- What macroeconomic feedback mechanisms, if any, will need to be considered in undertaking the program impact analysis?
These include the microeconomic elements most likely to be affected by the macroeconomic framework through identified channels of effect, and vice versa. Additional linkages may have to be identified, and after an initial review, may require an adjustment to the scope, sequencing, or thrust of the proposed set of policy reforms.
- What mesoeconomic transmission mechanisms and channels of effect are instrumental in supporting macroeconomic to microeconomic effects, and vice versa?
- What are the key assumptions about the macroeconomic context and structural characteristics of the economy that underpin the policy operation?
- What types of systemic risks or macroeconomic vulnerabilities will need to be investigated in the context of a sensitivity analysis?

The above checklist is the minimum necessary assessment for each policy operation. Ideally, the review should be carried out by a country economist. Similarly, coordination with other donors that routinely carry out country and sector reviews will increase the understanding of critical economic linkages. Where significant feedback effects and mesoeconomic filters are identified, the resources and capacity for developing independent judgment must be provided to the program preparation team.

CHAPTER 3

DIMENSIONS OF SECTOR POLICY ANALYSIS

- Sector Analysis Concerns
- Linkages Between Policy Reforms and Development
- Scope of Sector Analysis
- Price Policy Context
- Institutional Context
- Reform Timing and Sequencing Issues

A. Introduction

The need for comprehensive sector analysis has long been recognized in ADB. This chapter looks at issues related to the sector, policy, and institutional environment in the context of policy-based operations. The linkages between policy reforms and development are also reviewed. Two fundamental sector issues are then discussed—price policy and institutional arrangements. The chapter concludes with an overview of reform timing and sequencing issues, including an introduction to the political economy dimensions of reform. These last points pave the way for placing the policy diagnosis in an analytical framework, to be discussed in the succeeding chapter.

B. Sector Analysis Concerns

The analytical framework for sector program assistance in ADB's 1987 review of program lending policies called for, among other things, assessments of issues such as: sector-specific policy constraints and their effects on producer incentives; domestic and border input and output prices; the degree of sector reliance on market forces; sector adaptability to changing circumstances; and the adequacy of institutional support and improvement needs (ADB 1987). Written in the mid-1980s, the review was primarily concerned with aligning price parameters, fostering market competition, and ascertaining the dynamic environment. ADB's policy continues to emphasize the medium-term development orientation of policy changes, rather than short-term macro-

stabilization measures. The review provided for a sector program focus—policy framework, investment program, and underlying institutional readiness—that closely relates to the policy–investment–institution trilogy of the sector-lending modality. It also set out the basic analytical issues involved in adjustment, further discussed in Chapter 6.

A decade later, the 1996 review of ADB's program lending policies (ADB 1996) stressed the need for programs to be based on a comprehensive sector analysis and policy dialogue covering sector investment plans, institutional development needs, and social and environmental aspects. Moreover, some observations from the special evaluation carried out by the Operations Evaluation Department (OED) (ADB 2001) underscored the need for a thorough and comprehensive sector analysis.

Recognizing the importance of the interconnectedness of policy changes, program loans are generally considered as "slices of reform" implemented in a dynamic environment. As indicated by Collier (2001), for example, once macroeconomic misalignments have been addressed, growth is still usually constrained by many other factors. This characteristic emphasizes the importance both of understanding clearly that reforms are related to the rest of the economy or sector, and of identifying the most important binding constraints, which, in turn, implies appropriate selection of reform priorities. It also raises two questions about the program design: First, are the proposed policy and institutional reforms representative

of the binding constraints, given the circumstances? Second, what alternative policy and institutional reform measures are being considered that take into account the interlinkage of the subject reform area with the rest of the policy and institutional structures of an economy? Effectively addressing these questions reinforces the long-standing emphasis on a careful and comprehensive sector analysis.

C. Linkages between Policy Reforms and Development

Reforms are ultimately concerned with more efficient and/or equitable use of resources, goods, and services. Both policy and institutional reforms have developmental, welfare-enhancement characteristics, which may involve the dismantling and reforming of existing underperforming institutions while, at the same time, developing, through investment-type activity, new institutional arrangements for future development. Ali (1990) makes the point that it is difficult to understand, or even have, good investment projects in a bad policy and institutional environment. The persistence of such a situation may reduce real returns to projects, implying that a high rate of return to policy reforms may be generated by correcting distortions to the policy environment. Ali suggests that investment projects and policy reforms are closely linked and that practitioners can employ similar analytical approaches.[6] Kanbur (1990) notes that many investment projects include conditions on policy changes in the sector being invested in (usually included as "assurances" in ADB project

documents). Appropriate project-policy combinations can lead to an overall welfare improvement if these are complementary.

The relationship between policy reform and investment is shown in Figure I using a stylized production possibility curve. The total reform and development expectations are represented by a movement from point A on the prereform/development production possibility curve, to point D on the postreform/development production possibility curve. This can be decomposed into four elements.

- First, reforms that improve the efficiency of existing institutions and resource use result in movement from A to B, with A representing a state of suboptimal performance, to the present production possibility frontier.
- Second, a movement from B to C can be the result of, for example, price policy changes that will lead to a movement along the production possibility frontier.
- Third, a movement from C to D can be the result of investments in institutions or production.
- Fourth, a movement from A to C, and then to D, represents an idealized state that reflects a sequencing of reforms and development.

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6 Ali (1990) also observes that price policy reform can be viewed as a means of narrowing price distortions and the wedge between demand and supply. In this sense, the purpose of (price) policy reform is to increase efficiency through resource reallocation, which involves movements along the production possibility frontier, whereas a public investment project could be seen as adding to the supply of capital and moving the curve itself.

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FIGURE 1: Effects of Programs and Projects on Production Possibility

PPF = production possibility frontier.
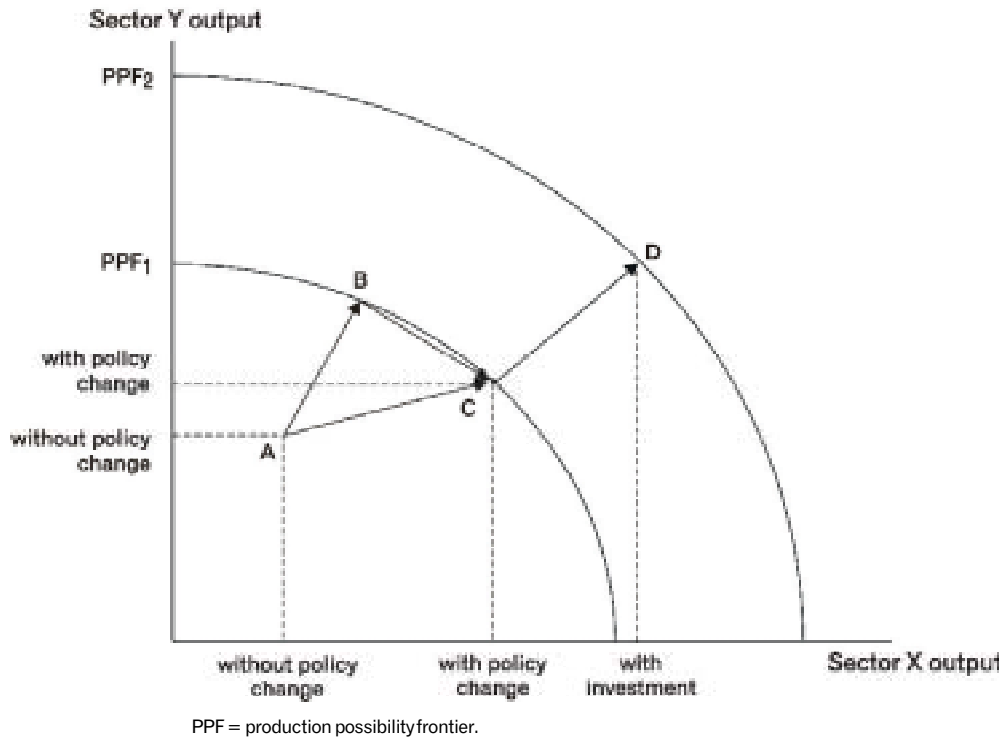
D. Scope of Sector Analysis

Program proposals can result from the analysis carried out as part of country studies, sector analyses, and dialogue with the government during country programming. They can also result from project analyses highlighting policy issues that are fundamental both to project sustainability and replication, and to program and project monitoring and evaluation (M&E). Figure 2 exemplifies the various stages in ADB operations that can give rise to policy issues. While project analysis, implementation, and M&E can all make valuable contributions to the identification of policy issues, sector analysis is the logical starting point for conducting systematic analysis of the sector and of related development and policy issues.

A significant focus of sector analysis in ADB is to identify and understand constraints and their causes. While resource limitations and allocative choices are at the heart of an economic problem, policy-related failures may be a cause of the problem. Examples are provided in Box 1.

To identify and understand the range of market, nonmarket, and institutional

FIGURE 2: Stages in ADB Operations Giving Rise to Policy Issues
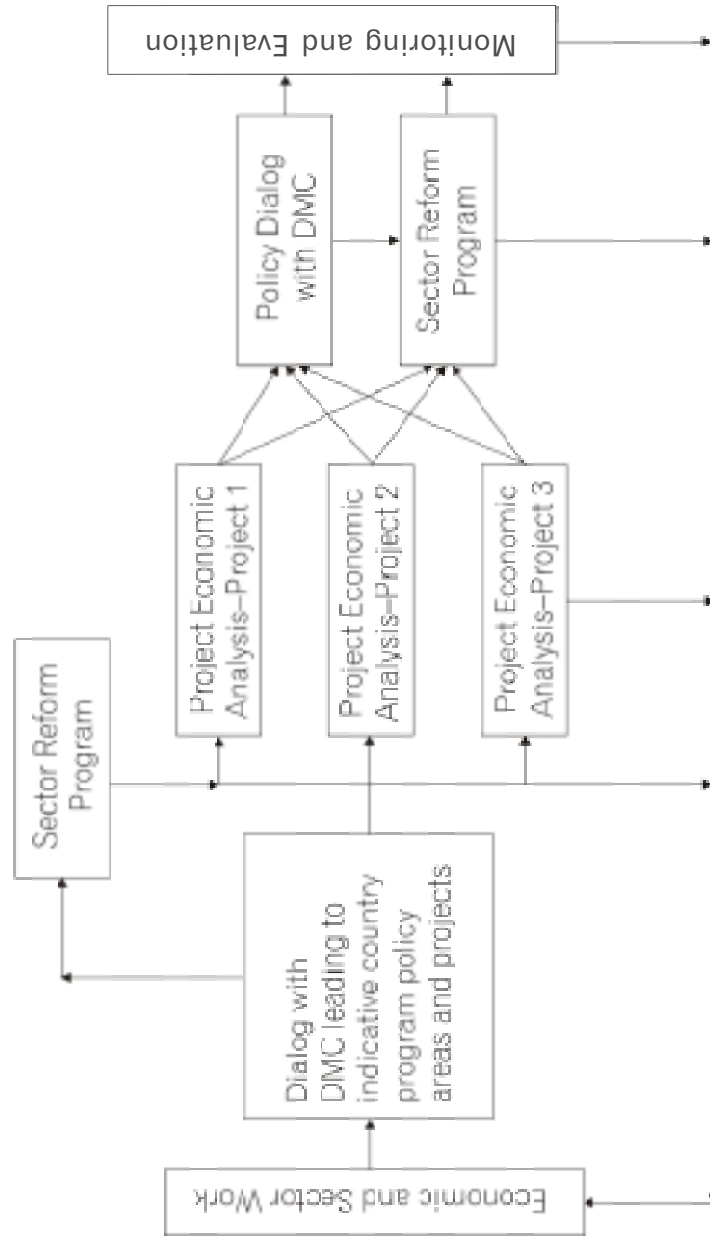
DMC = developing member country.

Source: EREA, Asian Development Bank.

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**Box 1: Policy-Related Economic and Institutional Problems
Identifiable in Sector Analysis**

- Differences between the market and opportunity costs of a resource due to government price management (e.g., minimum wages).
- Barriers to market entry due to government-imposed subsidies, tariffs, quotas, nontariff barriers, and public enterprise dominance.
- Investment disincentives due to poorly defined and unsecured property rights.
- Failure to correct negative externalities due to lack of defined standards and their enforcement (e.g., pollution).
- Limited access to and supply of resources available for development (e.g., underdeveloped capital markets).
- Uncompetitive markets and inefficient provision of goods and services (e.g., lack of monopoly regulation).
- Failure of private markets to provide a good or service.
- Failure of markets to provide information (e.g., prices or product safety).
- High transaction costs among economic agents and markets.

Source: EREA staff, Asian Development Bank.

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issues that affect sector performance, a systematic analysis is required. A relevant scope for sector analysis of issues to support program lending is described in the 1996 review of ADB's program lending policies (ADB 1996). Elements of the discussion are included in the following summary of the elements of a sector analysis:

- **Macroeconomic Context and Country Management.** This includes (as described in Chapter 2) economic projections, macroeconomic assessment, national development strategies and plans; public sector resource management; overall social conditions; and country poverty assessment including income distribution and patterns of poverty.
- **Sector Description.** This includes assessment of the sector's role, features and resources, changes and trends, the demand for sector goods and services, the overall supply of sector goods and services including input and output system efficiency,

government policies, reform agenda and key institutions.

- **Markets, Prices, and the Incentive Structure.** This relates to a specific industry's conduct, performance and structure; policy-caused price differentials such as those from taxes, subsidies, and monopolistic practices; market underperformance or failures; influences on transaction costs, profitability, and competitiveness; response to the global context and international trade; and assessment of private sector needs and constraints.
- **Institutional Performance.** This concerns the role, conduct, and performance of government and public institutions, including: the institutional framework; public goods and service provision and capacity; fiscal and public expenditure incidence and impact; the state of the enabling and regulatory environment; and institutional and nonmarket failures, such as bureaucratic malfunctions and corruption.

A distinction needs to be made between two major types of market-related policies—price policies that can fundamentally affect enterprise returns as well as economic efficiency, and institution-related policies that affect the facilitation and regulatory role of government, and the alignment of institutions in relation to users. The next two subsections highlight specific issues in price policies and in institutional policies that should be assessed at the sector level.

E. Price Policy Context

Differing policy objectives can have profound effects on the allocative efficiency of resources and distribution that can lead to changes in overall welfare. So, policy implications of reforms are of interest to a wide range of domestic and international stakeholders as well as development practitioners. The economic soundness and impact on stakeholders of existing and alternative policy environments need to be assessed in relation to each other. Box 2 provides examples of conflicting policy alternatives in the agriculture sector. The examples of policy alternatives provided in Box 2 are often achieved through the use of different price policies. Box 3 provides examples of how the use of price policy in agriculture can affect different stakeholders. Further, it shows that policy alternatives are often mutually

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Box 2: Examples of Conflicting Policy Alternatives in the Agriculture Sector

- Promoting resource allocation efficiency in agriculture (and the economy) to raise productivity and competitiveness.
- Accelerating economic growth through expansion and support for agriculture.
- Reducing malnutrition and increasing rural incomes by emphasizing expanded small farmer production and employment creation for the landless.
- Improving food security through price and supply stabilization and extensification.
- Promoting self-sufficiency and price control to maintain political stability.

Source: Adapted from P. Streeten. 1987. *What Price Food?* Macmillan Press.

Box 3: Examples of Price Policy Trade-Offs in the Agriculture Sector

- Price controls to lower consumer prices can reduce farmer incomes (depending on elasticities).
- Raising producer prices can raise the consumer cost of living.
- Input subsidies may increase production but distort resource allocation and weigh in on fiscal resources.
- Food subsidies may lower consumer prices but weigh in on fiscal resources.
- National food self-sufficiency through government traders (monopolies) can result in allocative inefficiencies and welfare losses, and undermine sector growth.
- Production extensification and intensification can have negative environmental externalities.

Based on: P. Streeten. 1987. *What Price Food?* Macmillan Press.

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exclusive, implying efficiency and distribution trade-offs.[7]

Project sector assessments and economic analysis routinely identify price differentials resulting from market structure and policy choices, as reflected in the divergences between financial and economic prices. In many cases, the price differential and its implications may be tolerable within the context of economic performance. However, when these differentials are so large that they undermine efficient allocation of resources—as when production is subsidized but prices are controlled—then policy changes may need to be considered.

Tables 2 and 3 summarize examples of the causes of variation in financial and economic values in the context of agriculture and rural development. These tables indicate that the extent of differences between values is usually a reflection of the policy environment and

TABLE 2: Factors Causing Economic Prices to Exceed Financial Prices

Factors Causing Difference	Examples from Rural Development and Agricultural Projects
Taxes on output	• Export duties and taxes • Controlled food prices for consumers (depresses producer price)
Subsidies on inputs	• Fertilizer prices to farmers • Nonmarket-based credit
Foreign exchange premiums	• Overvalued foreign exchange depresses output earnings and raises input costs (in domestic currency)
Price ceilings	• Users of water at a tariff that does not cover all capital, and operation and maintenance costs
Positive externalities	• Agricultural project production encourages growth in agro-processing

Source: EREA, Asian Development Bank.

TABLE 3: Factors Causing Financial Prices to Exceed Economic Prices

Factors Causing Difference	Examples from Rural Development and Agricultural Projects
Subsidies on output	• Produce bought at high fixed price by state marketing board
Taxes on inputs	• Import duties on agrochemicals and equipment
Foreign exchange discounts	• Undervalued foreign exchange increases output earnings and depress input costs (in domestic currency)
Minimum wages	• Financial price of unskilled/surplus labor is higher than its economic price
Negative externalities	• Environmental damage

Source: EREA, Asian Development Bank.

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[7] This example is discussed in further detail together with approaches to analysis in Chapter 5 and Case 1 in Appendix 3.

the choices being made by policy makers. In Table 2 where, for example, economic prices are higher than financial prices of food products due to a tax, these can reduce the incentive to produce and suggest a policy regime favoring the consumers. Conversely, a subsidy on inputs will cause their economic prices to exceed their financial prices, reflecting a policy bias toward producers (Table 3).

As more economies adopt market-based systems and freer trade principles, the divergence between financial and economic prices has generally diminished. However, there can still be considerable variations between financial and economic prices across sectors, especially for nontradable goods and services within an economy, reflecting divergent sector policies and priorities. In most project cases, a degree of distortion exists, due to taxes and transfers, but at an acceptable level. In other cases, excessive biases in revenue collection or wasteful use of transfers create significant welfare inefficiencies. Where this is an issue for projects, the government may agree, as part of a project, to a limited set of new policies, such as improved tariff collection efforts or the reduction of a subsidy, to ensure sustainability of the project.

In general, projects assume a given environment of market or nonmarket imperfections and distortions, whereas policy-based loans are intended to change or remove these distortions. This means that understanding the extent and causes of financial and economic price variations is still needed in addressing the policy issues related to productive sectors. In cases where the sector

assessment and project analyses identify policies that are disruptive to market processes—and, for example, significantly affect the financial or economic viability of a project—then policy reforms may be warranted to reverse losses.

The general implication is that reasoned and plausible analysis is needed to identify the positive and negative impacts of price policy on financial and economic performance of production and services, including the effects on different stakeholders. Once performance-affecting distortions have been identified, the extent to which stakeholders understand the trade-offs should also be assessed, since their influence can dramatically affect the momentum for reform.

F. Institutional Context

1. Institution Building and Reforms

Until the early 1980s, development efforts focused largely on filling the human and financial resource gaps. Throughout the 1980s and into the 1990s, the IMF and the World Bank emphasized "getting prices right" through price-focused structural adjustment. Such reform measures are still needed to address, for example, specific price constraints where they are binding. But, the nexus between economic management, institutions, and development is receiving greater focus.

The changing focus stems from the crucial role that institutions play in the functioning of markets, especially in the transmission of market signals, and in

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providing appropriate incentives to economic agents. More importantly, institutions allow major elements in the policy reforms to be sustained over the medium term. While policies can have a significant influence on institutions, institutions, in turn, can also affect the form and adoption of policies. Stiglitz (1998) suggests that development is about transformation of society, and institutional changes are part of this transformation. So, countries will have to build capacity as well as reform and replace the traditional institutions that will be superseded in the development process. In this regard, three elements need to be recognized: (i) the historical and social context of institutional changes; (ii) that changes take place as a process of evolution and adaptation; and (iii) that such changes involve broad participation and consensus building.

Viewed holistically, an institution is a collectively shared, self-sustaining system of beliefs about the "rules of the game" in a society, the enforcement mechanisms, and the organizations that support market transactions and public goods delivery. These rules, mechanisms, and organizations are important as they determine the incentives for political, social, and economic exchanges, including such aspects as property rights, regulations against fraud and anticompetitive behavior, the rule of law, and the judiciary (Rodrik 1999). When such basic rules do not function efficiently, market opportunities are limited by institutional constraints such as: high transaction costs arising from asymmetric information; poorly defined and weakly enforced property rights; and barriers to market entry for new

participants. A vital aspect of the reform process is therefore the realigning of institutions, including policy changes geared toward improving institutional arrangements that determine the context in which policies are made. Improvements in institutions that lower transaction costs, manage risk, and enhance competition are also key (World Bank 2002a).

The World Bank's *World Development Report 2002*[8] highlights the importance of institutions by asking why some markets are rewarding for some groups and not for others, and why some are inclusive and well integrated while others are localized and segmented (World Bank 2002a). The reasons for these performance variations are explained in terms of the rules, mechanisms, and organizations. The effectiveness of institutions determines the extent to which people, from the rich to the poor, have the opportunity and incentive to be involved in gainful market activity (World Bank 2002a). Stiglitz (2000) notes that "in assessing institutional arrangements, one has to evaluate not only the institutions that exist, but those that are absent as well." These points underscore the need for institutional responses for providing appropriate social insurance, enhancing industrial relations, overcoming labor-market rigidity, expanding access to information and

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[8] The *World Development Report 2002* provides a comprehensive description of the facets of institutions that need to be understood, including firms (from farmers, to the governance of firms, to financial systems), government (political institutions, the judicial system, managing competition, and the regulation of infrastructure), and society (norms and networks, and the media).

education, and streamlining title registration and business licensing. Stiglitz (2000) further adds "from the perspective of policymakers, the most important issues are how to encourage the creation of good institutions and how to design institutions that can change as the environment changes. Both questions demand careful thought about organizational design and sequencing of reforms."

An implication of institutional policy change is the complexity of reforms that must be understood within the context of individual economies, including the institutional environment and arrangements[9] (Klein 1999). Policy change is also a process that takes place over time, with the cumulative effect emerging from the complementary and mutually supporting development of other institutions. So, the time dimension of institutional change needs to be better appreciated, as the time lags between initiating changes and their ultimate impact can be significant, especially at the lower layers of the hierarchy of institutions. The longer-term consequences of such institutional underpinnings should not be underestimated.

In addition, changes in one set of policies or institutions typically lead to the need to overhaul related institutions. For example, the problems of corporate

debt overhang and insolvency have led to measures for financial liquidation and bankruptcy proceedings that subsequently required changes in existing laws and the judicial system. Given their context specificity and local inter-connectedness, the idea of international best practice in institutions has limited relevance, with few cases of "one size fits all" in institutional policy and design, especially in the context of institutional structures that lead to economic growth and poverty reduction.

Strategically, institutions need to be developed with local involvement, using local knowledge, hands-on experience, and even experimentation (Rodrik 1999). Aoki (2000) notes that a wide variety of arrangements, both formal and informal, can be considered as "institutions" for as long as economic agents take them to be relevant, from statutory laws and regulations to unwritten rules and codes of behavior based on social ties and trust. Similarly, a formal regulatory body is only an effective institution if it can enforce sanctions on these agents. This suggests that only institutional arrangements that are mutually consistent or reinforcing may be viable and sustainable in an economy. So, the outcome of policy advice is determined by the interactions of the strategic expectations of stakeholder groups.

With regard to the capacity-building aspect of program design, institutional development can only emerge when stakeholders are willing to bring this about; when they coordinate their choices; and when they share a consensus on the reform measures to be adopted.

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[9] Institutional environment refers to the background/institutional constraints, or rules of the game that guide agents' behavior. Institutional arrangements refer to the governance structures designed to mediate particular economic relationships, which can include business firms, long-term contracts, public bureaucracies, and nonprofit organizations.

Consequently, policy change that deals with or affects institutions involves a relatively complex process that frequently evolves in conjunction with development efforts.

Bringing together some of the above strands, the study of institutions, as part of sector analysis, should focus on fostering institutional arrangements and innovations that address causes of constraints and failures. The ultimate aim is to induce coordination and cooperative solutions in implementing policy changes. In turn, this will help mitigate conflict and realize mutual gains. Second generation reforms, for example, will require the design of new sets of institutions and institutional arrangements that should ensure appropriate incentives to economic agents and organizational structures that are "incentive compatible." With the aim of aligning governance structures with opportunities and incentives, reform programs may also be designed to minimize institutional constraints, coordination failures at various levels of government, transaction costs, and asymmetries in wealth/assets and information. Thus, the interaction between first and second generation reforms needs to be clearly understood while the timing and sequencing of respective reforms should be carefully considered (see Chapter 3.E). In this context, policy analysts and makers need both to adopt a long-term view of development and to undertake detailed diagnosis that will help in building local institutional capacity.

Throughout the 1990s, ADB policy operations increasingly addressed institutional reforms. The need to address institutional development and capacity limitations in reform situations is explicitly acknowledged in core program loan reports, as summarized in Table 4.[10] A theme that runs through each of these loans is the absorptive capacity of existing institutions to deal with economic and social development. However, absorptive capacity is a broad term and various perspectives need to be considered if capacity-building initiatives are to be appropriate. In this context, absorptive capacity refers to the policy-making environment; the managerial and administrative capacity of institutions responsible for translating policy into the delivery of programs and services; and the technical capacity of institutions. With current practices in mind, the following subsections summarize generic points in assessing the institutional framework, as well as issues in the managerial, technical, and absorptive capacity of institutions.

2. Understanding Functions and Performance of Market-Related Institutions[11]

In its discussion of market institutions, the *World Development Report 2002* provides a useful basic framework for understanding the functions and performance that could become the basis for effective institutions. Three aspects

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[10] For example, Abonyi (2002) identifies variability in the assessments of certain reform programs (e.g., VIE: State-Owned Enterprise Reform and Corporate Governance Program), not least from the point of view of reaching a mutual understanding between the government and the international financial institution as to the approach to and content of the reforms.

[11] This subsection draws heavily on World Bank (2002a) (p. 8).

TABLE 4: Institutional Issues Considered in ADB Program Loans

Loan	Example of Capacity Issues Addressed	Type and Means to Address Capacity Limitations
VIE: State-Owned Enterprise Reform and Corporate Governance Program	Strengthening institutional and regulatory framework for state-owned enterprise reforms	Policy development and coordination: Individual steering committees integrated to identify priorities and sequencing of reforms, monitor progress, mobilize support.
MON: Financial Sector Program	Weak commercial banking skills and inadequate financial systems	Policy development, market-related institutions, and public support service efficiency improvement (management and technical): Banking supervision, regulation standards and procedures development, skills development through long-term advisory support, and on-the-job training.
VIE: Financial Sector Program	Development of financial market infrastructure to facilitate private sector participation including commercializing and modernizing banks, secured lending, and capital market development	Market-related institutions and public support service development (management and technical): Development of the legal and regulatory framework including passage of legislation, implementation of asset valuation, collateral security and registration systems, accounting and audit system establishment to international standards, and information disclosure.
THA: Social Sector Program	Facilitation of structural reforms, mitigation of short-term impact of structural reform, social service efficiency improvement, and decentralization	Facilitation of structural adjustment reforms and public service development (management): Start of decentralization with specific assistance in mitigation for displaced workers and education support for low-income families, planning and management systems and capacity, monitoring systems, and labor market information flows.
INO: Financial Governance Reforms	Fiscal management, and financial institution strengthening in terms of information disclosure and regulation	Nonmarket and market failure containment, policy development for market-related institutions, and public support service (management and technical): Management and technical training in central bank and nonbank financial services supervision, skills development in risk assessment and new financial services, and accounting and performance audit skills development.
KAZ: Pension Reform Program	Pension system efficiency and sustainability of market and nonmarket systems	Policy development, market and nonmarket institutional development to address service efficiency and sustainability: Reorganization and establishment of public institutions, system expansion, improvement of management and administration capacity, and technical capacity building.
PAK: Trade, Export Promotion and Industry Program	Implementation of trade liberalization, trade facilitation restructuring, and privatization	Support for trade liberalization policy, development of market-related institutions, and nonmarket support services: Modernization of the management and technical aspects of customs administration, and efficiency improvement of the export promotion board.

Sources: Asian Development Bank, reports and recommendations of the President of above loans (see Appendix 1).

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are highlighted: the channels of information that exist to inform current and potential new participants about market conditions and goods; the extent to which property rights and contracts are defined and enforced as the basis for determining access to resources and income; and the extent to which institutions increase or decrease competition in markets.

a. Channels of information

Good information flows help formal and informal businesses identify production and trading partners, as well as compare and identify possible returns in terms of size, risk, trustworthiness, and creditworthiness of potential partners such as suppliers, producers, buyers, borrowers, and lenders. Each of these partners, as part of the institutional setup, can play a role in the collection, production, analysis, verification, and dissemination of information and knowledge. Public or private institutions, such as banks, can perform this role for specific purposes. The extent to which the various participants have access to sufficient information determines the likelihood of participation. Development-needs assessment is based on an analysis of: the extent to which formal and informal institutions collect, provide, and disseminate information as a matter of policy; the costs of collecting information; and related capacity limitations.

b. Property rights and contracts

Understanding and clearly defining rights to assets and income and being able to protect agreed rights is essential for market development. The rights of the private sector in relation to the state, and foreign participants in relation to domestic participants, as well as the ability of institutions to handle disputes and enforce contracts, have a crucial bearing on market and participant confidence. Not only must corporate and SME investors and innovators be assured of their rights, but also the poor, risk-averse investors who stand to lose what little they have. The focus of assessment is likely to be: constitutional provisions; the judicial system; other social networks and mechanisms for rights determination, adjudication, registration, and settlement; and the costs of enforcement.

c. Competition in markets

The value of competition through equal opportunity is the incentive for participants to do better and channel resources to their best use, compared with systems that depend on social and political connections. On the one hand, this requires institutions that facilitate competition, by providing key market entry information and rules of operation and by minimizing transaction costs. On the other hand, institutions play a key role in regulation that ensures fair practice from the point of view of all participants. Problems arise in over- and under-regulation of markets, resulting in exclusion to the benefit of a few participants in the former, and exploitation and other negative externalities in the latter. Assessments on the appropriate level of market regulation will help determine the extent to which public and private

regulatory institutions help or hinder competition.

Collectively, the above aspects determine critical policy-related matters including the distribution of assets, incomes, opportunities, and incentives for market participants, as well as the efficiency of market transactions. The performance of these institution-dependent economic variables determines the pace of improvement of productivity, economic growth, and poverty reduction.

3. Managerial and Administrative Capacity of Institutions

Assuming that the political commitment exists to pursue a reform path, the next areas to be assessed are the nature, role, and abilities of the institutions responsible for implementing policy changes. When policy reforms address enterprise underperformance problems, such as poorly managed public enterprises, in favor of emerging market-based opportunities, reforms can move the management of activity to more appropriate public, or private, institutions. When reforms address the delivery of public goods and services, assessment of the capacity of institutions to deliver in the context of programs will be as important as project institutional assessments, if not more so, because of their often sector-wide effects. Box 4 outlines key elements of managerial and administrative absorptive capacity that require an understanding for the purposes of policy operations.[12]

4. Technical Capacity of Institutions

Closely related to managerial and administrative capacity is the issue of technical capacity to implement reforms. Again, where reforms are proposing realignment of responsibilities between institutions, whether public or private, appropriate technical procedures and a minimum level of technical capacity must exist or be developed for institutions and reforms to be credible. For example, a realignment of public services may require substantial investment in technical training or reorientation from direct service provision to a support and regulatory function. Decentralization often requires not only massive fiscal decentralization, but also extensive and costly investments both in local skills training for administration of funds and the technical aspects of planning, and service delivery that were previously handled by central government staff. Such capacity building needs to be integrated with the adjustment effort. Box 5 summarizes technical capacity considerations for policy operations.

G. Reform Timing and Sequencing Issues

1. Economic Considerations

Economic theory suggests that an agent takes one action that leads to the highest marginal returns in the circumstances. This theoretical proposition should apply to all decision-making

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[12] A comprehensive ADB source on issues and assessment of public administration is Schiavo-Campo and Sundaram (2001).

**Box 4: Factors to Consider in Assessing Managerial
and Administrative Absorptive Capacity**

- Which are the core public institutions involved in the implementation of policies, specific steps (e.g., decisions/activities), and related policy conditionalities?
- What are the key capacity-related assumptions about implementation capacity for reforms, steps, and related conditionalities?
- How do decisions/activities relate to each other including required linkages, coordination, and cooperation among institutions?
- Do senior and mid-level management understand and support the reform?
- Is there an acceptable level of administrative integrity and accountability (has due diligence been conducted)?
- What is the extent of user confidence in target institutions?
- What capacity gaps exist and how can they be reduced, such as change of conditions, or strengthened capacity?
  – Is the organizational structure appropriate and what, if any, are the requirements for change?
  – Is there clarity in management and administrative roles and responsibilities?
  – Is management of public service personnel, including motivation, incentive, and reward systems, conducive to reforms and what is the likely responsiveness?
  – What are the prospects for institutional adaptability?
  – Have human resource development needs been assessed and determined?
- What are the implications for public expenditure, including distribution of fiscal responsibilities; interdepartment realignment/reallocations; short-term adjustment costs; medium-term savings; budget execution; changes/introduction of cost-recovery systems; and reporting, accounting, and auditing systems?

Source: Based on G. Abonyi. 2002. *Toward a Political Economy Approach to Policy-Based Lending.* ERD Working Paper Series No. 14. ADB, Manila.

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processes—choosing among many feasible actions the one that makes the largest impact, or alternatively, choosing to tackle the binding constraint. Sequencing policy changes should also follow this first order of principles: What is the most binding policy or institutional constraint? Once determined, it should be removed first. Similar choice and sequencing processes in the fields of project management and engineering include such techniques as critical path analysis (ADB 1986).

The analytical principle that should govern the timing and sequencing of changes is always the concept of removing the binding constraint at the macro, meso, or micro level (Chapter 2.B). Indeed, as Collier and Gunning (1999) observe, many structural constraints have to be addressed alongside macro stabilization measures. In this sense, stabilization and structural changes cannot be viewed in isolation or in a static way. Rather, they should be viewed as an interlinked and dynamic process. Easing an interlinked sequence of bottlenecks, therefore, is a dynamic process. Nevertheless, priority actions and measures should be established.

For example, in response to external and internal imbalance, the intended effect of macroeconomic stabilization is to restore balance and stability as fundamental to economic growth. At the sector and microeconomic levels, loss of domestic and international market competitiveness—due to chronic

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Box 5: Factors to Consider in Assessing Technical Absorptive Capacity

- Existence of appropriate technical systems, procedures, and standards.
- Technical capacity of institutions and staff to carry out realigned tasks.
- Sufficiency of budgets to carry out realigned tasks.
- Adequacy of technical support for institutions and staff assuming new responsibilities.
- Adequacy of human resource development provisions for technical aspects.
- User confidence and satisfaction in technical aspects of service delivery.

Source: EREA staff, Asian Development Bank.

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inefficiencies in factor use and low productivity, falling export prices, or rising imported raw material prices—may require more specific structural reform action as a subset of first generation reforms.

Similarly, Agenor and Montiel (1999) indicate that the sequential order, timing, and optimal pace of specific macroeconomic and structural reforms and their interrelationship are important for conceptual and practical reasons. In terms of, for example, the financial sector, they suggest that fiscal imbalance and control should be addressed as a prerequisite to undertaking the full range of financial sector reforms, such as liberalization of the domestic financial system and removal of capital flow restrictions, in order to avoid the risk of inflation and debt overhang which may, in turn, result in capital flight. Further examples of sequencing considerations for financial sector reforms are provided in Box 6.

In the context of ADB operations, sector-level reforms usually assume that first generation reforms have already been implemented. If they have not been, macroeconomic constraints will likely influence the success or failure of policy operations. For this reason, it is necessary that ADB program loan reports include a realistic and pragmatic assessment of the extent to which earlier reforms have been effectively implemented. Table 5 shows examples from three of the core program loan reports as to how timing and sequencing issues arose and were addressed.

2. Political Economy Dimensions

The timing and sequencing of policy change should not, though, be viewed as a mechanistic process. The timing and sequencing considerations need to go beyond the technical aspects of "optimal policy design," and several other considerations need to be borne in mind. These include the related magnitude of economic and social dislocations—the adjustment costs and the political feasibility of a policy change.

Collier (2001) stresses the need for a diagnostic procedure that sufficiently analyzes the range of possible binding constraints on growth and the proper sequencing of priorities. Furthermore, he observes that policies depend on the balance between political constituencies,

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Box 6: Examples of Sequencing Considerations in Financial Sector Reforms

- A sound fiscal position is needed to deal with potential bad loan situations and to ensure that franchise banks maintain their value.
- Establishing and deepening the domestic money and securities markets are necessary to develop the domestic banking system and to ensure that financial opening does not lead to excessively high interest rates and overintermediation.
- Policies that safeguard property and promote investor confidence are necessary before removing capital flow restrictions to avoid capital flight, especially where there is debt overhang.
- Of particular importance is the liberalization of the enabling environment for foreign direct investment (FDI), trade, and finance to raise investor confidence, and to ensure that the benefits of FDI can be realized (know-how transfer and improved commercial openness).
- The liberalization of and increased competition in domestic financial systems (freeing domestic interest rates, use of indirect instruments for monetary control, etc.), as protected by adequate accounting-standards supervision and prudential regulation, should occur before the capital account is opened to avoid capital flight, a balance-of-payments crisis, and misallocation of external funds to under-performing investments.

Source: Pierre-Richard Agenor and Peter J. Montiel. 1999. *Development Macroeconomics.* Second Edition. Princeton University Press.

with many stakeholders and electorates having insufficient information to influence and control their leaders. Four areas are identified as bottlenecks: lack of information, lack of a way to turn information into knowledge, lack of capacity for analysis, and lack of capacity for policy design. Assuming that international financing institutions have the capacity for analysis and can assist with design, it is essential that they: encourage standards of good practice in terms of gathering and sharing information; help in analysis, design, and dissemination of policy options; and encourage lender-borrower collaboration, based on partnership as opposed to coercion. The practices are consistent with issues such as inclusion, empowerment, and civil participation as they relate to policy-based operations.

In considering the political economy dimensions of adjustment, even at the sector analysis stage, it is necessary for the policy analyst to: (i) sift through

various policy alternatives and paths to search for a "least-cost" solution, as well as design an acceptable package and sequence of reforms; (ii) test the political reaction as a means of assessing the demand for changes from both active and latent constituencies, and improve understanding of the nature of policy reforms; and (iii) identify the likely adjustment process and related costs as a way to assess the different dimensions of reforms (see Chapter 6). The last point is also made by Collier (2001) who indicates that in countries with inadequate policies, there can be a large latent constituency for policy reform.

In discussing the feasibility of policy reforms, Sadoulet and de Janvry (1995) suggest that "A policy that does not pass the test of political feasibility is a utopian proposition." Made in the context of introducing quantitative development policy analysis, this highlights the need to understand the political as well as the economic and

TABLE 5: Economic Timing and Sequencing Issues in Program Loan Reports

RRP	Key Context/Issues	Justification for Reform Timing/Sequencing
VIE: State-Owned Enterprise Reform and Corporate Governance Program	Viet Nam's gross domestic product (GDP) growth dropped by nearly half from 8.2% in 1997 to about 4.4% in 1998. This decline was partly caused by the regional financial crisis, declining foreign direct investment disbursements, and a sharp drop in exports. The Government reacted by controlling public expenditure and monetary growth, devaluing the dong on two occasions, and introducing import bans on major consumer goods.	Following the immediate stabilization measures, the Government recognized that sector reforms would have to be significantly deepened for Viet Nam to effectively cope with the consequences of the regional crisis and to reestablish sustainable growth. To sustain growth in the industry sector, specific reforms were intended to: (i) create an enabling environment for foreign investment; (ii) support the development of private enterprises; (iii) accelerate state-owned enterprise reform by strengthening the institutional framework forsupporting corporatization and commercialization of state-owned enterprises; (iv) introduce a system of improved corporate governance; and (v) enhance labor mobility.
THA: Social Sector Program	After a GDP growth of 8.7% in 1995, the Asian financial crisis resulted in zero GDP growth in 1997 and an anticipated negative growth rate in 1998. The crisis was primarily traceable to an exchange rate policy of tying the baht to a basket of currencies heavily weighted by the US dollar, combined with imprudent lending policies and inadequate supervision of banks, especially private financial companies.	Initially, the Government proceeded with its economic reform in five areas: (i) monetary and fiscal policies, including macroeconomic targets and management to restore macroeconomic stability; (ii) financial sector problems faced by financial institutions; (iii) public administration, including reforms of state enterprises and the civil service; (iv) industrial restructuring to boost overall industrial competitiveness; and (v) new initiatives in the social sector. Social sector policies were seen as important in terms of their timing to mitigate the negative social consequences of the crisis and the possible hardships resulting from economic reform/restructuring measures.
INO: Financial Governance Reforms	Although economic performance was largely on track in the first half of 1997, and despite the apparent strong macroeconomic fundamentals, the rupiah began to weaken in the second week of July 1997, following the floating of the Thai baht. A number of factors such as the level of foreign debt, heavy investment in the property sector, weaknesses in supervision and regulation of the banking system, governance problems, uncertainty about political succession, and emerging social tension eroded confidence and contributed to a large decline in the rupiah.	Following the unfavorable reception of the draft 1998/99 budget, the Government entered into a strengthened stabilization program with the International Monetary Fund in mid-January 1998 with an emphasis on fiscal stabilization measures. As the crisis had adversely affected the financial sector, the program loan was formulated to restore confidence through financial governance reforms. Reform measures consisted of: (i) improving financial governance practices, (ii) increasing the disclosure and transparency of financial information, and (iii) strengthening the legal and regulatory framework of the financial sector.

RRP = report and recommendation of the President.
Sources: Asian Development Bank, program loan reports of above loans (see Appendix 1).

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social dimensions of reform. Abonyi (2002) also makes the point that effective policy operations require an appreciation that policy reform is a "domestic game," even when initiated externally. Thus, policy making and associated processes of economic liberalization, such as the pace of privatization, need to be pragmatic and to closely consider influences that constrain macroeconomic and sector policy choice, including political acceptability. Reforms and policies must be consistent with the broader policy environment.

Implementing institutional changes, such as decentralization, may take even longer, given entrenched vested interests let alone the logistical challenges of such a change. Again, the time lags between initiation of change and implementation should not be underestimated. Sector analysis can play a major role in assessing the readiness, interest, and time involved in such changes and can initially assess the program implications.

The above points stress that institutions should not be treated as "black boxes" that readily transform inputs into expected program outputs. A relevant design issue is the extent to which policy conditions can be formulated in a way that is compatible with adoption incentives. In this regard, an understanding of the political economy of the process of policy reform is essential (Abonyi 2002). According to Stiglitz (1999), many attempts at reform, at both the macroeconomic and sector levels, are less than successful because of their proponents' misunderstanding of the foundations of

a market economy and of the basics of an institutional reform process.

It is therefore clear that policy operations and the responsibility of governments to implement sometimes far-reaching reforms require, most importantly, careful assessment of the capacity to adapt and the willingness and incentive to change (Box 7). To this end, sector analysis presents an opportunity to update the understanding of domestic institutional arrangements and of the political and policy development process; assess the time and resources needed to effect change and develop capacity; and minimize efficiency losses.

Overall, the determination of what the policy and institutional constraints are, including the most binding constraints, should be the task of sector diagnosis. Carefully done, this should include not only a descriptive review of what is going on in a sector, but also an analysis of why things are going on as they are and of what alternative measures can be taken to improve the prevailing policy and institutional context. This requires policy makers and analysts to have a good understanding of the workings of the economy and the sector. Appreciating the distinction between price and market reform issues on the one hand and institutional reform issues on the other, which second generation reforms typically address, can also be crucial in comprehending the context of specific types of reform and probable response, timing, and sequencing issues, as well as possible outcomes. Clearly, the timing and sequencing of policy changes constitute a complex and interlinked

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Box 7: Factors to Consider in Assessing Capacity to Adapt, and Willingness and Incentive to Change

- What are the sector and institutional boundaries of the policies under consideration?
- Who are the key stakeholders with an interest in and likely to be affected by policy changes?
- How will political and development ideology, ongoing shifts and possible inertia, and their sources affect alternatives?
- What is the policy-making style of the client government (e.g., autocratic, democratic, consensus-based), including an understanding of the legislative and consultation processes, and, importantly, their timing?
- To what extent is the policy area a perceived priority by different stakeholders?
- Does a "reform champion" exist?
- Which stakeholders perceive decreases/increases in net benefits as a consequence of policy changes? What are the political implications and the way this is likely to be handled by the government, including compromises, compensation, and trade-offs? Do stakeholders have the power and means to influence the policy process (e.g., approval, block, implement) and the incentive to do so? How can opposers be induced to support, or at least, not oppose policy changes?
- What is the extent of technocrats' and legislators' supporting internal analyses of policy issues, and of their understanding?
- Is the timing of policy change appropriate in terms of the stability, reputation, and life of the government (e.g., progressive and reform-minded, new, mature, with agenda conflicts, transparent, intransigent, existence of policy vacuums)?
- What is the overall extent of political will and commitment, and what are the key motivating/deciding factors?

Source: Based on G. Abonyi. 2002. *Toward a Political Economy Approach to Policy-Based Lending.* ERD Working Paper Series No. 14. ADB, Manila.

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system that has to be dealt with in a disciplined manner. That is, there are some fundamental principles that need to be observed, and they have to be anchored in a rigorous sector diagnosis.

CHAPTER 4

ASSESSING THE EFFECTS OF POLICY CHANGE

- Assessing the Effects of Policy Change
- Approaches to Analysis

A. Introduction

The starting point for any assessment of policy change is the status quo or the "without program" situation. Ideally, much of the framework and data for this assessment should have been collected as part of sector work and related analysis. With the status quo as the reference point, conceptually, reform measures are similar to project activities in an investment project (Squire 1989). In addition, reform measures lead to an output, such as in a new law, in support of desired outcomes. So, the underlying input-output relationship becomes the conceptual framework for identifying and valuing the benefit and cost streams of policy operations, as in projects.[13] OED's Special Evaluation Study on Program Lending (ADB 2001, paragraph 77) notes: "Program design seems to begin with the proposed reforms, derived from international practice, with sector analysis and expected benefits as justification." This finding calls for efforts to refine and further develop the conceptual and analytical framework for undertaking ex-ante economic analysis of policy and institutional reforms.

Kanbur (1990) notes, in reference to World Bank experience, that many commentators have claimed that it is difficult to carry out economic analysis for policy operations.[14] The same is often heard with regard to ADB program loans. However, such claims are questionable because when proposing a policy reform measure as part of the program design, an opinion has already been expressed—however implicitly—about the expected linkage between the reform measures and their benefits. For example, a road investment project proposal to rehabilitate a length of highway implies an underlying assessment of the relative priority and the incremental benefits that such an investment should generate, including a justification for the investment as a means of allocating scarce resources toward some welfare objective.

Seen in this light, the problem is not about whether it is possible to perform economic analysis on policy reforms. It centers on how such analysis can be done, or the issue of the analytical framework and specific methods to be used. To make effective use of a defined analytical approach involves setting up valid and verifiable assumptions. In the context of project design, the economic analysis entails developing valid and verifiable assumptions of certain input and output relationships relevant to a project. In the context of policy reform, formulating valid and verifiable assumptions is an even more critical part of the economic analysis.[15] This endorses the need for solid sector analysis that provides the basis to

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[13] Chapter 7.D further discusses this relationship, and Figure 8 offers a schematic of it.

[14] See also Ali (1990).

[15] Kanbur (1990) and Ali (1990) show in a stylized fashion how project economic analytics can be applied to analyzing policy reforms, referring to price policy reforms. In fact, in the literature of public economics, any policy or project variable can be chosen as endogenous to see the change in welfare level with respect to a marginal change in the chosen variable within the same analytical model.

validate the assumptions that underlie effective reform. A further analytical challenge is to apply the framework in assessing institutional reforms.

B. Assessing the Effects of Policy Change

Once a policy problem is identified through diagnostic sector work, the next step is to determine alternative solutions and predict their possible outcomes. Ideally, policy options should be subject to simulations of possible outcomes in order to assess their possible impact on, for example, sector performance. Such simulations would also assist governments and stakeholders in determining alternative paths and approaches to improving performance and selecting from these paths. Given the possible mixes of reforms and investments, several paths

can be taken. Figure 3 shows this conceptually, with t_o representing the current sector performance and t_n performance after implementation. The task of policy analysts is to assess and present viable options to governments and stakeholders to facilitate selection of the least-cost and best sequenced mix.

Short-run negative consequences can arise as part of the policy reform process. For example, expenditure reduction programs may constrain government expenditure and the delivery of services, or resource immobility may hamper efficiency gains from price liberalization in the short run. A priori, a range of reform measures could have negative short-run consequences for certain stakeholders in the absence of explicit mitigatory interventions in the form of compensatory mechanisms and social

FIGURE 3: Different Reform Scenarios to Meet a Policy Goal

Source: EREA staff, Asian Development Bank.

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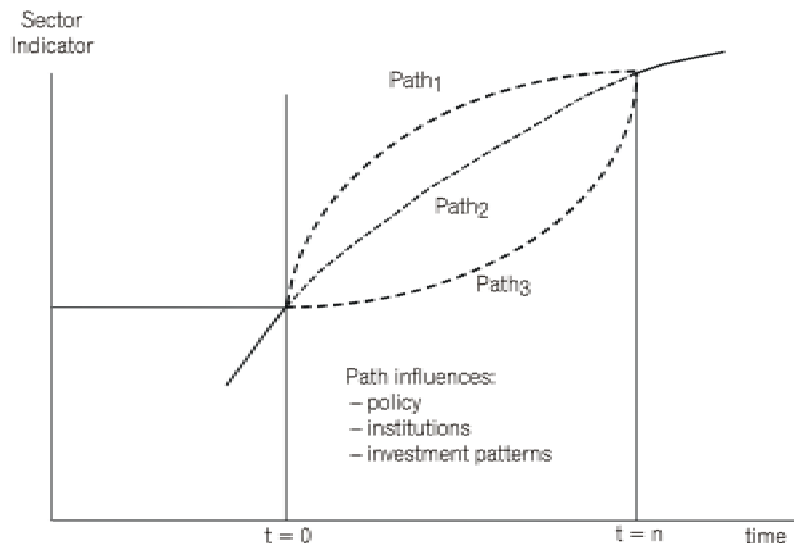
safety nets. Despite the potentially beneficial longer-term consequences of these reform measures for even short-term "losers," the short-run negative consequences cannot be neglected. This was one of the early lessons of structural adjustment lending in the 1980s and 1990s. It retains its relevance today with recent reforms that increasingly focus on institutions. Figures 4 and 5 depict profiles in terms of without adjustment, with adjustment, and the "no shock" situation based on a five-sector computable general equilibrium model for Ecuador in the late 1980s (de Janvry, Fargeix, and Sadoulet [1990] reported in Kanbur [1990]).

To the extent possible, policy analysis, including simulations, should be carried out to identify the short- and medium-run effects. However, ex-ante assessments of policy options are often based on hypotheses drawn from a priori reasoning that should, in principle, be subjected to empirical verification, rather than be accepted as statements of fact. Given the nature of some reform measures, this can be challenging. For example, improving the "enabling environment" is often used as an argument for policy reform. Among the ADB program loan reports reviewed (Appendix 1), a strong case is usually made for reforms and often an intuitive "with-without" comparison can be instructive. For example, the Kazakhstan pensions system must be reformed to avoid collapse; the Federated States of Micronesia (FSM) must rapidly develop the private sector to compensate for the shrinkage of the public sector as Compact of Free Association funding is reduced; financially distressed SOEs

in Viet Nam need urgent restructuring and, where possible, privatization; and financial sector development in economies, such as Mongolia and Viet Nam is a necessary, even if not sufficient, condition for accelerated and sustained economic growth and poverty reduction. Where a priori reasoning cannot be verified and intuition must be relied upon to facilitate close monitoring, the analytical limitations should be acknowledged, and the assumptions on probable response and expected outcomes should be stated.

C. Approaches to Analysis

Sector-wide and loan-specific studies can potentially employ a full range of macro-, meso-, and micro-analysis techniques that could shed light on the possible effects of a given policy change. As described in Evans (1999), analysis can range from economic modeling and full quantitative analysis, to historical and qualitative analysis, to cross-country comparisons and direct country estimates, and the "checkable story" fallback, including rapid appraisal techniques. The limitations of these progressively less rigorous techniques are discussed in Evans (1999).[16] For example, where analysis of feedback effects is desirable, general equilibrium analysis is appropriate. Comparative static analysis, using partial equilibrium techniques, allows analysts to see the effects of, for example, a price change (including taxes and subsidies) or quota change on supply and demand of a commodity. Examination of descriptive statistics and ad hoc calculations provide insights into available secondary data, but amount to a qualitative assessment.

FIGURE 4: Alternative Real GDP Scenarios

Index of Real GDP
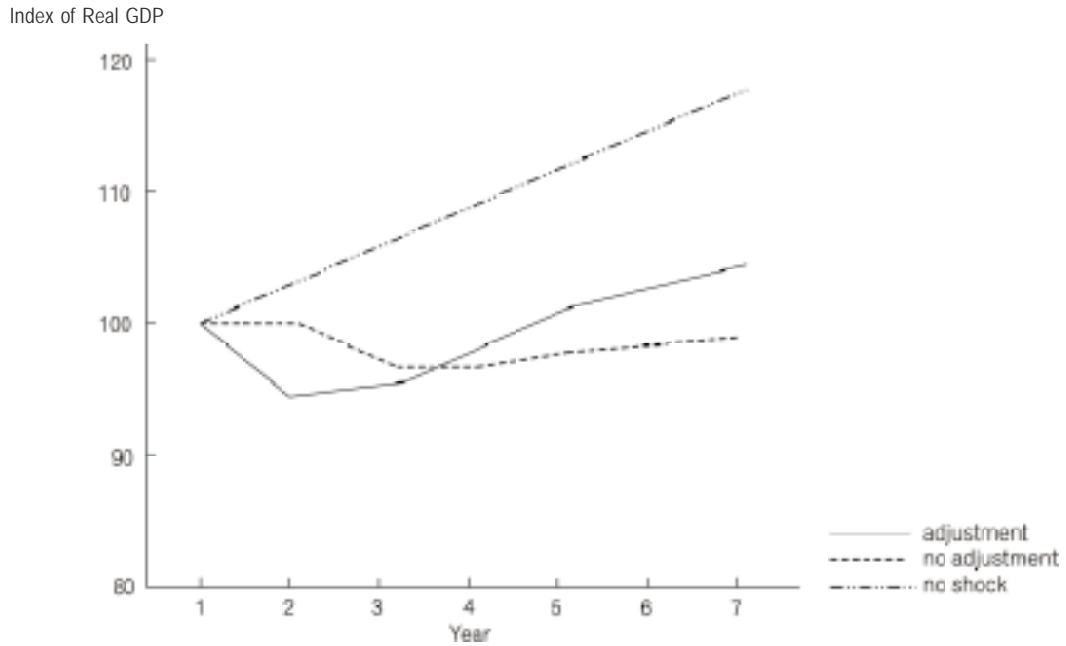
FIGURE 5: Alternative Rural Poverty Scenarios

Percentage of Rural
Poor in
Urban
Population
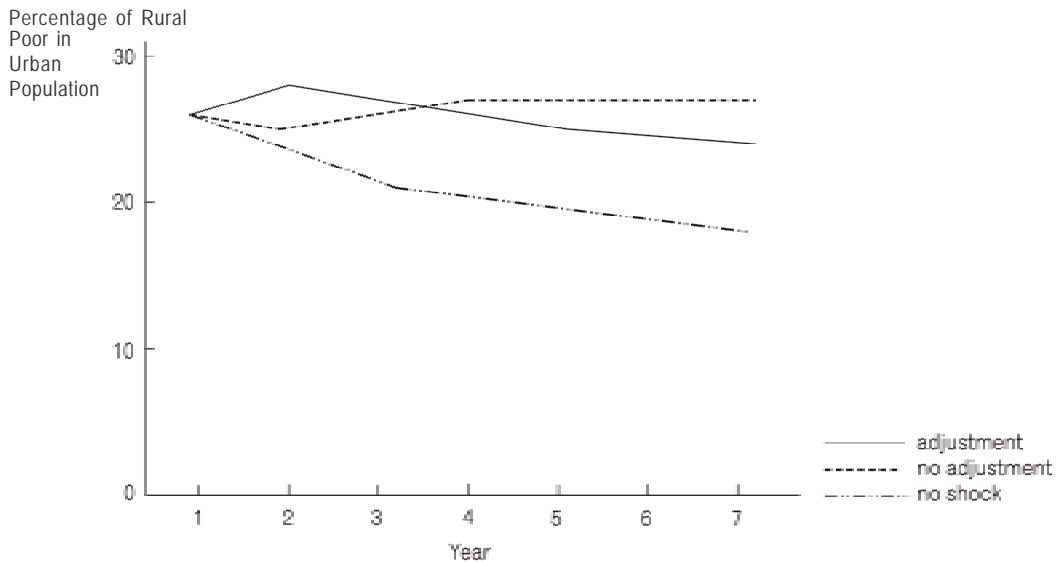
Source: de Janvry, Fargeix, and Sadoulet. 1990. *The Political Economy of Stabilization Programs: Growth, Welfare, and Sustainability*. Department of Economics, University of California, Berkeley. Reported in R. Kanbur. 1990. Projects versus Policy Reform. Paper presented at the World Bank Annual Conference on Development Economics, Washington, DC.

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The World Bank (2002b) provides a useful framework to help the analyst in selecting the appropriate approach and tool for analyzing the effects of changes. The framework considers two key dimensions: the importance of feedback effects in the reform measures, and data availability and analytical capacity (Table 6). In cases where the policy reform is likely to lead to high feedback, with significant multiplier effects transmitted through a number of channels and markets lagged over time, the effects will need to be estimated. Examples of reforms with high feedback effects include monetary and fiscal policy changes that affect inflation, interest rates, balance of payments and reserves, fiscal deficits, trade and exchange rates (removal of tariffs and exchange rate policy), and financial

sector reforms. Reforms that are less likely to have feedback effects include narrowly focused public sector institutional reforms, such as civil service reforms, land reforms, privatization of SOEs, and labor market reforms.

The main messages emerging from Table 6 are as follows:
• Reliance on qualitative assessments results in non-parametric analysis and does not permit order of magnitude impact assessment projections. The greater the quantitative and parametric analysis, the greater the possibility of identifying the magnitude of outcomes and predictions.
• As a minimum, descriptive statistical analysis is required to provide an order of magnitude assessment of the

TABLE 6: Selection of Techniques for Policy Change Impact Analysis

| | | Data and Analytical Requirement | | |
		Low	Medium	High
Accommodation of Feedback Effects	**Low**	• Descriptive statistical analysis and economic and social characterization • Qualitative impact assessments with specified assumptions • Use of secondary sources of analysis with clear assumptions	• Partial equilibrium analysis of prices, supply, and demand parameters • Budget analysis • Benefit incidence analysis • Partial equilibrium analysis of price policy • Affordability and willingness-to-pay analysis	• Survey-based household models • Full econometric demand and supply analysis • Fiscal impact and public expenditure analysis • Comparative institutional analysis/transaction cost analysis
	High	• Qualitative impact assessments of inter-temporal and distribution effects • Descriptive statistical analysis	• Multi-market analysis • Reduced form input/output analysis and simulation models	• Social accounting matrixes—input/output analysis • Computable general equilibrium

Source: Adapted from "A User's Guide to Poverty and Social Impact Analysis." Draft. 2002. World Bank Poverty Reduction Group and Social Development Department, 19 April 2002.

[16] A summary of Evans' suggestions is also provided in Bolt and Fujimura (2002).

economic and social situation as a starting point for assessing possible impacts.

- Where qualitative assessments and a priori reasoning are to be relied upon, then the limits of the analysis and the underlying assumptions should be clearly stated.

- The initial descriptive work and the nature of the policy change will provide guidance as to whether there will likely be significant feedback effects that will guide further analyses, especially the sufficiency for partial equilibrium analysis or the need for general equilibrium analysis.

- Increasingly rigorous analytical techniques require greater use of data, resources (analyst time and funding for field and office work), and capacity.

The rest of this chapter outlines the basic features of these analytical techniques and limitations, and references to their application in ADB policy operations.

1. Descriptive Statistical Analysis (Cases 2 and 3 in Appendix 3)

Where neither general nor partial equilibrium modeling is possible, then reform impacts will have to be assessed with simpler descriptive statistical analysis and ad hoc calculations and methods for possible effects prediction. These could involve, for example, estimates of the price effects of particular interventions and estimates of their impacts on consumers and producers on the basis of simple demand and supply elasticities. Such elasticities can be derived econometrically, but in simpler calculations,

they can be taken from other studies or simply assumed.

Case 2 in Appendix 3 (Philippines Power Sector Restructuring Program) illustrates the approach to estimating changes in economic subsidies accruing to a particular consumer group such as the poor. This approach is also useful for assessing the impact of social sector programs, as in health or education, which involve the introduction of, or increase in, user charges, or the expansion of private sector provision. Another useful exercise is a budget impact analysis. This has little economic modeling behind it, but is easy to apply to a package of fiscal reform measures that are a usual feature of sector reforms. Case 3 in Appendix 3 provides an application to the Uzbekistan Education Sector Development Program.[17]

2. Partial Equilibrium Analysis: Market and Price Analysis (Cases 1 and 4 in Appendix 3)

Partial equilibrium modeling is a more formal analytical technique where one market or sector is looked at alone, without allowance for feedback to other parts of the economy. "Static" analysis either assumes low feedback effects or ignores effects in other markets and industries, so is appropriate in analyzing changes brought about by price policy changes that have limited impacts on economy-wide aggregates. Applications include, for example, enterprise budget effects and competitiveness issues, as well as situations of low data availability

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[17] The linkage between policy change and fiscal impact is further discussed in Chapter 6.

and capacity. Case 1 in Appendix 3 provides an application of a simple partial equilibrium analysis to the FSM, which was found to be practical during ADB policy dialogue with government officials on the appropriateness of subsidizing efforts to establish a poultry industry.

Another illustration is provided in the supporting analysis for the Philippines Grains Sector Development Program (DAI Consultants 1998). This program has several policy reform menus but the element modeled covers the reform of the rice market and pricing policy of the National Food Authority. Case 4 in Appendix 3 gives the structure of the model and shows how it was used to assess the effect of a policy change. Using the same reform program, further extension of the rice market analysis to an agency cost analysis was undertaken by combining the organizational costs and market inefficiency costs. Partial equilibrium modeling of this type is useful in situations in which key prices relevant to the assessment of reform impact are best treated as endogenously determined, rather than as exogenous parameters. For example, in the Grains Sector Development Program, the price of paddy received by farmers and the price of rice paid by consumers are critical variables. The model allows prices to be determined by domestic demand and supply conditions, allowing an assessment of how they vary with the assumed impact of reforms.

However, in an ex-post examination of the costs and benefits of price policy reforms based on a case study in the cashew nut sector in Mozambique (McMillan, Rodrik, and Horn Welch 2002), caution is suggested on basing price policy reform entirely on an analysis of the likely response to supply from price liberalization. This is especially the case where "a priori generalizations" are relied upon as the basis for assessing the expected efficiency gains and what eventually proved to be overstated benefits. It became apparent that consideration of the Government's level of commitment to the reforms and identification of the level of political opposition were both inadequate. There had been a failure to consider compensation for redundant processing laborers; to introduce a "credibility enhancing mechanism" for the reforms; and to generate public awareness. This failure led to low expectations by processors and their laborers, traders, and farmers that the reforms would hold. Processing laborers did not find new employment because they anticipated that the Government would backtrack on the reforms, and traders captured a good part of the price benefits intended for poor cashew farmers. Clearly then, in cases where key stakeholders' expectations are not sufficiently managed, there is a high risk that the assumed market response will not occur. The three main lessons that emerge from this case are: expectations management is needed; the reform was as much a political problem as a technical one; and the use of conditions to push through reforms was ineffective given the lack of reform ownership by the Government.

3. Partial Equilibrium Analysis: Comparative Institutional Analysis (Case 4 in Appendix 3)

A strand of the emerging institutional economics, the transaction-cost framework of analysis, is at a nascent stage but has been gaining interest as it offers an additional perspective to microeconomic analysis. Transaction costs are variously defined as the costs of making exchange or as indirect production expenses, as opposed to the costs of production or transforming inputs into outputs or direct production expenses.[18]

While the standard neoclassical economic analysis rests primarily on the price mechanism in allocating resources, transaction-cost analysis proceeds from the premise that the price mechanism is not always efficient and that a different mechanism functions within the firm. This logic dates back to Coase's (1937) explanation that when a firm internalizes its costs, the internalization overrides the price mechanism due to the transaction costs incurred. This implies that the boundaries, or "frontiers" of a firm depend not only on the productive technology, but also on the "costs of doing" business (Klein 1999).

According to the transaction cost school of thought, institutions that evolve to lower these costs are key to the performance of economies. When transaction costs are absent, the initial assignment of property rights does not matter from the point of view of efficiency because rights can be voluntarily adjusted and exchanged to promote increased production. But when transaction costs are substantial, as is usually the case, the allocation of property rights is essential.

A limitation still exists on the extent to which comparative institutional analysis can be appropriately quantified in view of the difficulty in measuring transaction costs and in assigning empirical proxies for key variables, especially uncertainty (Klein 1999). So, empirically, institutional analysis depends mostly on qualitative case studies. An illustration of comparative analysis for each type of governance structure or institutional arrangement is given in the Agency Cost Approach in Case 4, Appendix 3.

4. Applied General Equilibrium Modeling (Case 5 in Appendix 3)[19]

The most comprehensive and sophisticated way to assess poverty impacts of policy change, including the capture of feedback and intertemporal economic effects, involves using either a social accounting matrix (SAM) or, in a more dynamic form, a computable general equilibrium (CGE) model based on a SAM. A CGE model is used to provide an evaluation of the effects of broad policy changes including exogenous shocks, economic policy

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[18] For further discussion, see for example, http://www.encycogov.com, 2001, "Decomposing Cost into Transaction Costs and Production Cost"; and Kherallah et al. undated.

[19] Case 5 in Appendix 3 is preceded by an expanded discussion of the principles of computable general equilibrium analysis.

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changes, and changes in the domestic economic and social structure. A SAM model is a square matrix with columns for expenditure and rows covering income accounts. It combines input-output data with the national accounts to reflect the circular flow of income at a particular point in time. In this context, its key use is as a means of assessing the direct and indirect income effects of a particular exogenous impact—such as a policy change leading to different expenditure patterns.[20] Since SAMs can be constructed with different groupings of households, they can be used to assess how the poorer households are affected. SAMs are typically static systems with fixed coefficients and prices. However, they can be extended to more dynamic models by the incorporation of behavioral equations relating to the major markets in an economy. These, combined with key parameters relating, for example, to various demand and supply elasticities, can be developed into a full macro model. Such models normally assume optimizing behavior, with flexible prices clearing all markets. The advantage of these models is that they can be designed to incorporate features of individual economies and can be run for different policy simulations. Such models are conceptually the only rigorous means of assessing the counterfactual—what would have taken place in an economy without a particular policy reform. Versions of such models have been used in a number of countries to assess the poverty impact of policy change. In Asia, these countries include Indonesia (Thorbecke 1991), and Malaysia (Demery and Demery 1991).

A combined use of CGE and SAM is considered a state-of-the-art methodology for ex-ante assessment of policy change.[21] However, the practical relevance of such methodology remains a subject of considerable debate. Even relatively sophisticated models based on the data from a large and recent SAM must, of necessity, be a major simplification of reality. Key parameters will often be assumed or simply taken from work on other economies. Also the structure, such as the "macro-closure rule" and functional forms of production aggregation, used for the models can itself influence their results.

For example, de Maio et al. (1999) and the reply by Sahn et al. (1999) debate the usefulness and accuracy of CGE models in assessing the relationship between poverty and adjustment in Africa. In addition, such models can normally cope with the impact of discrete policy changes such as a devaluation, a fall in aggregate government expenditure, a change in interest rates, or the removal of a

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[20] For recent application to policy analysis, see Iqbar and Siddiqui (1999) and Khan (1999).

[21] Dervis et al. (1982) and Robinson (1989) provide surveys for CGE models that follow the assumption of imperfect substitutability between imports and exports—the Armington assumption. A detailed introduction to the structure of SAMs and CGE models is given by Sadoulet and de Janvry (1995), chapters 10 to 12. Scarf and Shoven (1984) and Shoven and Whalley (1992) provide a survey of models of a more pure trade nature (perfect substitutability between imports and exports of a homogeneous character). They also provide the workings of benchmark equilibrium calibration and solution algorithms.

particular subsidy. However, the effects of more general reform measures, such as strengthening of the financial sector, institutional change in the civil service, or a new road-building program, may be difficult to express in exact quantitative terms and hence, difficult to incorporate in the models.

Finally, and perhaps crucially in the context of ADB operations, accurate modeling of this type is demanding in data, skills, and research resources. An effort by the World Bank—the Integrated Macroeconomic Model for Poverty Analysis (IMMPA) Project— is an attempt to combine CGE and SAM further with a financial programming model and household survey data in order to measure distribution impacts of various macroeconomic policies (World Bank 2001a).

A short-cut approach to country-specific CGE modeling is to establish "generic" models for particular types of economy—for example, one could be for a low-income labor-surplus economy as found in South Asia or the poorer parts of East Asia and another for transitional economies. Such models could be based on "typical" data of an assumed nature

and used to assess the possible consequences of different interventions for poverty. Their results can be no more than suggestive since the models themselves are not based on an individual economy, but they can give policy makers an insight into possible poverty outcomes under different scenarios and assumptions. Thorbecke (2001) describes the construction of such an archetypal model for an African economy, as well as the extension of his earlier work in Indonesia, to model the post-Asian financial crisis trend in poverty and distribution. Further, he highlights one of the main uncertainties in this type of work: how distribution within particular income groups changes in response to external economic shocks. Potentially useful as such models are, they are best seen as part of research initiatives that can provide the background to discussions of operational issues of policy operations.

Table 7 summarizes the different approaches to poverty impact assessment of policy changes and their limitations, and gives examples of ADB-supported programs that either have been or could have been assessed using these approaches.

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TABLE 7: Approaches to Assessment of Policy Operations

Approach	Advantages	Disadvantages	Possible Application
Descriptive statistical analysis and ad hoc calculations	• Simple to apply • Minor data and time requirements	• Requires specific parameters such as demand and supply elasticities • Captures only one dimension	• Power restructuring e.g., Loan 1662-PHI. • Health reform e.g., Loan 1568-MON • Education e.g., Uzbekistan Education Sector Development Program
Partial equilibrium modeling: Market and price analysis	• Fewer data required than computable general equilibrium modeling • More workable and easier to interpret results qualitatively	• Cannot capture computable general equilibrium modeling feedback effects • Not useful for complex reforms	• Self-contained price changes such as agriculture subsidy e.g., Loan 1739-PHI
Partial equilibrium modeling: Comparative institutional analysis	• Considers the costs of institutional transactions that can be key to understanding incentives and efficiency improvements	• Limited in ex-ante analysis because of the difficulty in estimating transaction costs	• Transaction cost approach is relevant in analyzing the rural economy where small farmers and traders facing high transaction costs resulting in thin markets, market failure in the provision of credit, inputs, and services, and incomplete or imperfect land and labor markets e.g., Loan 1739-PHI
Applied computable general equilibrium modeling	• Can simulate counterfactuals • Useful for impact of price changes like devaluation and interest rate rises	• Considerable data and time requirements • Results are sensitive to assumptions and model specifications	• Trade reform e.g., Loan 1680-PAK • Financial sector reform e.g., Loan 1485-VIE

Source: EREA staff, Asian Development Bank.

CHAPTER 5

ASSESSING THE POVERTY IMPACT OF POLICY CHANGE

- Mechanisms for Poverty Reduction
- Current Poverty Impact Assessment Practice at ADB
- Review of Current ADB Practice
- Modifying the PIA Matrix
- Operational Considerations

A. Introduction

The discussion so far emphasizes that, depending on the nature of the policy reform, the effects on poverty reduction involves interlinking macro-meso-micro causal mechanisms and, importantly, political economy factors. In terms of these factors, vested interests who prefer to maintain the status quo can be key obstacles to reform and to the subsequent realization of possible poverty reducing effects. In fact, in a deteriorating economic situation, the opportunity cost of not reforming may be a decline in growth rates and a worsening incidence of poverty.

Chapter 3 discussed the importance of issues such as incentives and greater access to opportunity through institutions and markets. Whether the "win-win" situation of growth and greater market opportunities, for example, is a feasible outcome for poor groups, depends on the conditions and development path specific to the economy in question. Further, the poverty reduction impact of a given rate of economic growth will vary with the form that growth takes, since the various sector patterns of economic growth have different poverty consequences.

B. Mechanisms for Poverty Reduction

Reform has various mechanisms through which it can reduce poverty. First is the effect of reform on employment creation. If economic activity responds positively to reform, the poor can find their wage employment increasing. It is this link that has led to the focus on labor-intensive growth in

discussions of poverty reduction (World Bank 1990). However, in terms of employment creation, even successful policy reform could lead to negative short-run employment effects. The most obvious example is the curtailment of import-substitution activities as a result of a more outward-looking export-oriented strategy. In the short run, the number of people below the poverty line may even rise, not fall, and employment reallocation, where needed, may take time. So, the transitional poverty effects cannot be disregarded.

A second mechanism is macroeconomic stabilization. It is often argued that while inflation is a tax on the whole of society, it falls most heavily on the poor, whose monetary incomes are not just low, but relatively inflexible. A significant source of income for the poorest is likely to be casual employment or the monetary equivalent of government-provided services, both of which may rise sluggishly at a time of accelerating inflation. Hence, the implication is that if inflation can be stabilized through fiscal and monetary policies, this loss of real income can be avoided. Also, in principle, any real decline in government expenditures on services, as part of the fiscal retrenchment required for macro stabilization, can have serious short-run consequences for the poor, or some measures to introduce user charges do not make adequate exemptions for the poor. However, in cases where the poor place little or no value on these services, fiscal reform may negatively affect the better-off to a greater extent and it may actually benefit the poor in cases where public expenditure reduction or switching may realign resources more efficiently.

A third and potentially complex area in which reform can interact with poverty is through relative price shifts. Chapter 3.D described, for example, how price policy changes can favor producers but negatively affect consumers. In most macro adjustment or stabilization programs, two important relative price shifts can be expected. One is a rise in prices of goods traded relative to nontraded, which occurs when real exchange rate depreciation is required to, for example, remove internal and external imbalances. The other is within the nontraded sector where a rise in prices for publicly supplied services may be needed to reduce the fiscal burden of service delivery. How the poor will be affected by such shifts will depend upon their situation as net producers or consumers of the goods and services concerned. However, these relative price shifts will occur at a time when real incomes are also changing and so the full impact on the poor will be determined by the net effect, allowing for both income and price changes. Even in the short run, this can be difficult to predict.

Finally, in recent years, reforms have focused on various aspects of institutional changes, since it is recognized that market relations operate with widely different levels of efficiency in various institutional contexts. Such institutional changes have been widespread in some economies, covering enterprise restructuring and privatization, financial sector reform, civil service downsizing and reorganization, and various forms of change to social service delivery mechanisms and organization. These reforms are intended to strengthen the growth impact of more conventional

macroeconomic adjustments—and to the degree that they succeed, they should have some positive impact on poverty reduction.[22] However it is far from clear how such changes will impact on the poor in the short run. For example, while financial sector reform is widely seen as essential for sustained economic growth, it is not immediately obvious whether and how soon the commercialization of publicly owned development banks will affect the poor positively.

Overall, economies developing and reforming in a dynamic environment often face limits to identifying and tracing, ex ante, where the impacts associated with an economy- or sector-wide policy loan start and end, and their specific poverty impacts. The same can be said for projects, although usually to a lesser extent because of their greater focus and clearer specified boundary. The World Bank (2001c) considers that exogenous influences on operations that address poverty—as well as the indirect effects on poverty of operations that address the underlying (systemic) constraints to growth, social development, and improved governance—can be greater than the direct effects of targeted interventions. Furthermore, as all ADB operations are required to show their direct and indirect effects on poverty, it is essential to identify and understand exogenous and endogenous macro- and sector-wide influences.

In such a way, poverty assessment at the country and sector levels may often be

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[22] See Aron (2000) for a discussion of the evidence on institutional change and economic growth.

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more appropriate than at the project or program level, especially where the causes and effects of poverty can only be considered meaningfully at the macro and sector levels rather than at the project or program level. In a similar way that the costs and benefits of a project are shared among different groups such as consumers, producers, and governments (ADB 1987), reforms and policy changes may have distribution, as well as efficiency, implications that need to be understood as part of the decision-making process. So, the analyst must not only comprehend the net effect of change, but also understand who gains and who loses from reforms.

C. Current Poverty Impact Assessment Practice at ADB

Recently, distribution analysis of policy reforms at ADB has focused substantially on poverty impact implications. Operational work at international aid agencies can apply the most appropriate approaches among those discussed before in Chapter 4, depending on the resources and skills available. For current practice at ADB, a uniform minimum requirement for policy operations preparation is a poverty impact assessment (PIA) matrix (discussed below). Rather than a quantitative tool, such as those discussed in the previous chapter, it is a simple but pragmatic way of establishing the economic logic that assesses the impact of proposed policy changes. ADB has applied the PIA matrix to its policy operations since 1995 (ADB 1995). The matrix was reexamined in a subsequent study and given a generally favorable review (Nelson 1998).

The logic of the matrix is that the welfare of a poor household is affected through four key channels: (i) the labor earnings of household members in the workforce; (ii) prices that they face in selling and purchasing goods; (iii) access to and the return on the nonlabor assets of the household; and (iv) their net receipts of public and private transfers. A similar approach is discussed in a more formal way in Behrman (1993). The importance of these channels varies between different poor groups and any framework for poverty impact assessment must be sufficiently broad to cover a range of possible scenarios.

The PIA matrix involves two dimensions or axes: one relates to the channels mentioned in the previous paragraph, and the other to the timing and degree of impact. The channels, specified on the rows, are labor market, prices, access of the poor to non-labor assets, and net transfers. The impacts, on the columns, are subdivided into direct effects, indirect effects, macro effects, and impact on the nonpoor. Table 8 provides the basic layout of ADB's current PIA matrix.

This framework was never intended to be more than a means of organizing thoughts on how particular policy changes might impact on the poor. Nevertheless, its usefulness is setting out clearly the underlying assumptions required to achieve the envisaged outcomes. In this sense, the nature of the matrix is similar to the program logical framework that is now widely used by funding agencies. The advantage of the program logical framework is that it sets out objectives a project is to achieve and the assumptions that must

TABLE 8: ADB's Current Poverty Impact Assessment Matrix

Channels\Impacts	Type of Effects			
	Direct	**Indirect**	**Macro**	**Nonpoor**
Labor Market				
Prices				
Access for Poor				
Transfers				
Net Effects				
Narrative				

Source: Asian Development Bank. 1995. Staff instruction on Poverty Impact Assessment. Strategy and Policy Office. Manila.

hold for these objectives to be met. The realism of the critical assumptions must then be tested, and if necessary, measures applied to ensure that, as far as practicable, reality matches these assumptions. An analogous procedure is adopted in the PIA matrix. However, the longer the chain of assumptions required, the less likely the envisaged poverty impact will be attributable to specific reform measures.

D. Review of Current ADB Practice

Review of ADB's core program loan reports revealed several areas of concern about the way the PIA matrix has been applied. The use of the matrix in these reports is largely qualitative. The cells in the matrix are either completed with a narrative or more simply with a positive or negative sign to indicate direction of impact on the income of the poor, or left blank where inapplicable. Several of the program loan reports adopt the same

judgment on short-run impacts of interventions on the poor. For example, the Pakistan Trade, Export Promotion and Industry Program loan report recognized negative short-run employment effects for the poor from tariff reform and privatization, as well as higher prices for the poor as a result of privatization, although in the long run, the report argues that these will be offset by improved allocative efficiency and rising exports. Several program loan reports also acknowledge that higher user charges due to market-oriented reform programs cause negative effects on poor consumers, such as the Mongolia Health Sector Development Program. In such instances, however, the reports argue that longer-term improvements in efficiency will benefit the poor as service purchasers. Similarly, liberalization of agricultural trade and the breakup of state farms are recognized as causing a loss of agricultural jobs among the poor

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in the short run, but higher long-run producer prices are assumed to boost their incomes.

For reasons discussed above, there are cases where policy changes will impact negatively on the poor in the short run. How the poverty situation improves over time will depend on a number of factors: principally, the effectiveness of safety nets; the supply response of various sectors to the new set of price and other incentives created by reform; the labor-intensity of expanding sectors; and the general fiscal position. Even where the intervention in question is assumed to be growth enhancing in the longer term, it is far too simplistic to assert that it always has net positive impacts overall, especially when there are large tangible short-run costs. Furthermore, in principle, the short-run effects have higher values than the medium- and long-run effects due to discounting, thereby complicating the intertemporal aggregation of the net benefits associated with reform programs. For example, privatization or trade liberalization measures may be growth enhancing in the longer term, but how far the poor share in this growth and how long they will have to wait to receive any of the benefits is unclear. In a number of program loan reports, assertions about potential long-run effects are made in place of detailed analysis. Modeling in either the full or partial versions (discussed in Chapter 4.C) can provide some of the answers to test such assertions.

Another limitation with the current use of the PIA matrix is the over-simplistic use of a poor/nonpoor distinction. If a poverty focus is to be a major element in the analysis, it is preferable to disaggregate the "poor" in some way, because different "poor" groups may be affected in various ways by particular interventions. For example, the circumstances and problems of the urban and rural poor are very different. Within the rural group, there are usually smallholders with land and those who are landless. Further, within the landholding group, there are those who grow cash crops, export crops, and import-competing crops. These distinctions need to be considered when completing the matrix to ensure that the context is clear.

The key point is that it would be very rare for "poor" groups to be affected uniformly by a policy change. Privatization may cause job losses to those with formal urban employment, but may have little impact on the rural poor (or may benefit them as consumers). Financial sector reform that leads to greater availability of credit, at interest rates below those in the informal credit sector, may benefit poor rural borrowers with some land to offer as collateral, but not borrowers who have no land to offer. Similarly, agriculture sector reform that liberalizes marketing, and as a consequence, raises prices to farmers near world market levels, may benefit rural poor farmers of export crops but may hurt the urban poor and farmers of nontraded crops. Also, since there can be wide variations in standards of social sector provision among a country's regions—the poor in one region may receive a different level of health or education from the poor in another region—there would be no standard

way of decomposing the poor as a category. Depending on the depth of the socioeconomic assessment on, for example, the segment of the poor that is likely to be affected most directly, such information can augment the explanation in the PIA matrix.

A further limitation of the current use of the PIA matrix is the ambiguity of the result in terms of poverty targets. Even where targets are set out in the program logical framework, these are for total population served rather than the poor explicitly. A recent exception is the Uzbekistan Education Sector Development Program, which has an explicit poverty loan component and, therefore, targets regions and schools in poor areas. Part of the reason for this is that many policy-based loans are designed primarily to promote improved efficiency of the sector as a whole rather than targeting the poverty reduction of specific groups. Other reasons are that the complex causal mechanisms through which reform measures impact on the poor and the need for data-intensive ex-ante empirical analysis make the estimation costly and uncertain. Consequently, at best, a priori reasoning is relied upon.

E. Modifying the PIA Matrix

1. Key Refinements

As a simple framework, the current PIA matrix can be modified in various ways to articulate the likely or possible poverty impacts of policy changes.[23] A modified PIA matrix is laid out in Table 9. The first focus should be on the channels through which the poor are affected and the distribution considerations, bearing in mind that specific reform measures will unlikely work through all channels and the relevant main and specific channels should be identified. The second focus should be on the intertemporal considerations of the impacts on the poor and other stakeholder groups of the intervention. The third focus should be on the degree to which the reform impact is direct or indirect. The fourth focus should be the mitigation and enhancement measures to reduce the negative effects on the poor or enhance their inclusion as appropriate. These measures, as with the reforms themselves, are a design rather than an analytical issue. These impacts can be described qualitatively, but it is preferable for these to be quantified, for example, in terms of losses/gains in jobs and incomes. Any assumptions, especially when the assessment is made qualitatively, that are critical for these mechanisms to work or for the analysis to be valid should be listed in the PIA matrix.

2. Channels of Effect (Rows)

Channels of effect will be different depending on the nature of the reform measure, and should be identified for individual reform measures. Several points are worth clarifying concerning ways in which reforms may work through respective channels of effect. First, in relation to labor markets and wages (row

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[23] "Likely" when empirical evidence is used, or "possible" in the case of a priori reasoning.

TABLE 9: Modified Poverty Impact Assessment Matrix

Possible Channels of Effect		Effect on the Poor			Effects on Other Stakeholders	Mitigation or Enhancement Measures
	Example of specific channels	Direct Short Run	Indirect Short Run	Indirect Medium Run		
Access to Labor Markets and Wages	Formal Informal					
Access to Markets and Prices	As output consumer As output supplier As input consumer As input supplier					
Access to Assets	Physical Financial Social Human Natural					
Service Access	Nonmarketed Public services					
Direct Transfers	Private transfer Public transfer					
Net Impact						
Information Basis or Crucial Assumptions						

1), it is often helpful to distinguish between formal employment and jobs in the informal sector, since policy change can affect these differently. Much of the criticism of public sector reform programs is that they can replace the first type of employment with the second. To more fully assess whether the effects are positive or negative, a fuller account of the structure of the labor market needs to be considered, including the existence of labor market rigidities and fragmentation and new and transient employment opportunities that may arise as a result of structural change. Such an account includes assessing the flexibility and absorptive capacity of the labor market as a whole and wage effects on different segments of the labor market.

Second, it is necessary to distinguish between relative price effects of goods and services that exert different impacts on the poor, depending on whether the poor are market suppliers or consumers. Lifting controls on commodity prices, for example, may benefit poor farmers who are producers, but may hurt the poor who are net consumers of the goods concerned. In addition, it is important to analyze the impacts on the poor of aggregate price changes that follow policy reforms. A refinement that helps remove the potential ambiguity in price changes is to decompose the price

mechanism category into three subgroups: (i) relative price changes for suppliers and producers; (ii) relative price changes for consumers; and (iii) relative price changes between sectors such as agriculture, industry and services. Prices can include expected policy reform-induced macro-level variables such as interest rates. A further aspect involves institution-related issues of market access and performance, as discussed in Chapter 3.E, that the policy reform may address. Under this heading fall, for example, reforms that affect market access and equal opportunity through information dissemination and practices that, in turn, influence market entry, transaction costs, and regulations affecting competition. However, depending on the nature of the policy reform, quantification of the likely effects on market volume and prices arising from market institution changes can be difficult, and qualitative assessments may need to be used.

Third, assessment of policy reform-induced changes in access by the poor to assets is needed, as lack of assets is an important dimension of poverty. A grouping of assets, in terms of physical, financial, human, social, and natural dimensions, is suggested (World Bank 2002b). To assess this channel of effect, an adequate account is needed of different types of assets and how issues such as property rights and contract enforcement affect access and control. As with market institutions, quantification of asset ownership aspects is likely to be difficult. Qualitative analysis of mechanisms that improve (or diminish) asset access is acceptable in most cases.

Fourth, the channel in terms of access of the poor to publicly provided services, such as schools, hospitals, and clinics should cover access to nonmarketed public services for which only a nominal or zero charge is made. This is because, if the poor are to be provided with public services on commercial terms, then these will be equivalent to any other market-intermediated commodities and should logically be covered under the access to markets and prices row.

Fifth, the mechanism of direct transfers will largely occur through public or private transfers that arise due to the policy reforms in question. Examples include tax reforms, social security reforms, and workfare programs where the poor are offered work opportunities on publicly organized infrastructure and related schemes. Subsidized systems of supply will be covered by the previous categories of price effects and publicly supplied services. However, these more indirect transfer impacts of a policy are more difficult to predict as they require knowledge of endogenous public finance mechanisms or household-level behavioral responses, for determining public and private transfers, respectively.

3. Timing and Other Considerations (Columns)

The columns of ADB's current PIA matrix (Table 8), can lead to ambiguity in distinguishing between direct, indirect, and macro effects on the poor. For example, removing a fertilizer subsidy will have a direct effect in raising farm costs and thus, indirectly, in lowering wage employment among hired

farm laborers. On the other hand, if the removal of the subsidy stimulates higher production, there will be positive indirect employment effects. Any employment consequences under the macro effect column would arise from the way in which the subsidy had been financed and the way in which the saved funds are utilized. This direct, indirect, macro distinction makes sense when there is a clearly defined market involved. However, once one considers more broad-based policy interventions and, especially, various institutional reforms, the distinction between an indirect and macro effect becomes blurred, so offering less justification for maintaining separate categories.

In general, the distinction between short- and medium-run effects on the poor needs to be clearer where inter-temporal trade-off considerations are important. While direct effects can all be considered short run, indirect effects can be viewed in both short and medium terms. Institutional reforms, because of the time needed for implementation, are often medium term in impact and can have both direct and indirect effects. Regarding long-run effects, since so many other factors will be at work, isolating long-run policy impacts is unpredictable and speculative. A short- to medium-run focus seems to be most practical in the PIA matrix.

Most policy changes will affect those above the poverty line as well as those below it. The use of a column for other stakeholders is intended to capture broader impacts. However, this broad categorization implies homogeneity across the two groups, which is clearly not the case. Identification of other stakeholders, such as consumers, producers, or residents of particular regions, is recommended.

Furthermore, as some policy reforms will result in gainers and losers, the issue of how to handle negative effects should be explicitly addressed to the extent possible. This may include compensation for redundant workers, or adding investments that facilitate adjustment, such as worker retraining. Measures that enhance inclusion and access by the poor can also help increase the positive impact of reforms on the poor. Modifying the current PIA to add the column for corresponding mitigation or enhancement measures allows for more explicit design considerations to mitigate the negative potential impacts on the poor or to include enhancement measures, such as ensuring that the poor have access to services.

F. Operational Considerations

The refinements, as recommended, are intended to reinforce the existing analytical requirement for systematic assessment of poverty impacts of policy changes. The modifications are largely based on already applied innovations in the use of the current PIA matrix and, as such, have already been adopted to a large degree. The intention is to promote more consistent and wider application of innovative practice.

To conclude this chapter, three practical considerations in the application of the PIA matrix are outlined.

- Internal design consistency between the program logical framework, program policy matrix, and PIA matrix is necessary. The PIA matrix is naturally linked to the program policy matrix as currently practiced, but the linkage of these two matrixes with the program logical framework needs to be clear. The program policy matrix can be considered as a road map for government commitment to specific policy actions in order to ensure that the implementation of the reform is on the right track. The PIA matrix is considered as a further elaboration of impacts of selected policy actions focusing on the poor. To ensure clear linkage, the three matrixes should be presented as a package of logical and supporting analysis in a coherent way (see Chapter 7 for a further elaboration).

- To ensure that the PIA matrix is underpinned by reasonable analysis, sufficient time should be given for preparation of the matrix, and commencing early in the analytical work. Thinking through the possible reform effects of using the PIA can help determine the scope of the analysis that underpins the reforms in general. The government and stakeholders must understand the PIA. To ensure this understanding and input by stakeholders in aspects such as mitigation and enhancement, the PIA matrix should be used as a loan design tool rather than an end-of-design reporting exercise.

- Where there are clear limitations in ex-ante analysis of individual program operations, economic sector work can play a crucial role in providing an analysis of wider scope and greater depth, and in highlighting key indicators for monitoring during implementation (see Chapter 3).

Used in a pragmatic way the PIA matrix is a useful framework to help assess each policy measure's channel of effect, analyze the intertemporal and distribution implications, and identify areas for further analysis or monitoring.

CHAPTER 6

ASSESSING
THE PROCESSES
AND COSTS
OF POLICY CHANGE

- Understanding Reform Costs
- Fiscal Environment for Policy Reforms

A. Introduction

Chapter 3 explained that, while price reforms are relatively discrete and can be rapidly implemented through a well-functioning market system, constraints in transmission mechanisms and systems will affect benefit realization. For example, institutional realignment and reforms may take time to implement, affecting the benefits. Furthermore, one reform or program of reforms, or even a set of interrelated reforms, may have little impact on people's lives until the economy, related institutions, and the system of governance confer broad complementary changes. In this sense, procedures and expected outcomes for program loans should allow for a complex picture of reforms that may be expected to generate benefits over the medium term.

Chapters 4 and 5 discussed how results of analyses carried out through sector work, including supporting quantitative and qualitative analysis, provide diagnosis and simulation of the problems and effects of a given policy change. These analyses provide insights into the costs and benefits of policy reform, estimates of net welfare gains, as well as the distribution and intertemporal dimensions of a policy change.

On the assumption that policy problems have been analyzed, and options and expected outcomes identified, this chapter turns to issues related to the process of realizing desired policy outcomes.

B. Understanding Reform Costs

1. Time Dimensions

Reforms are often triggered in response to a crisis in economic or sector performance, or to declining and chronic underperformance of key institutions in terms of their efficiency and effectiveness. The reforms, in some cases, can also be seen as a shock—or at least a change—to the status quo arising from a change to the structure of the economy or the nature of institutions. Once a reform path is embarked upon, those affected often focus on the reforms themselves as opposed to the underlying cause that initiated the need for change. In part, this is because adjustment is a process that takes time, due to possible underlying structural rigidities and to response lags. Gainers may become impatient with expected improvements, while losers face immediate welfare decline and await reabsorption into a changing economy or access to alternative services. These situations occur because adjustment resulting from reforms is not always an instantaneous event due to issues such as asset fixity or missing complementary measures.

During the transition process, a dip can occur in aggregate output. In terms of their flow, the nature of these costs could be seen as similar to that of the capital costs in projects (although different in nature), in that they tend to be incurred up front. For example, the profile of net returns for policy reforms is similar to investment projects with negative net flows in the

early years, becoming positive once benefits are being realized in full. As with projects, whether the reform will generate a positive net present value at an appropriate discount rate depends on the extent of net benefits (Kanbur 1990, Ali 1990).

Reforms are often initiated when the economy or sector is already in a weak situation, and may have to be implemented in the face of, for example, limited fiscal resources to help the adjustment process. This may mean that the short-run rigidity in factor markets is exacerbated and a short-run decline in national output and income occurs before an overall increase materializes. There may, therefore, be a need to alleviate the short-term costs of adjustment or accelerate adjustment through budget outlays during this period of redistribution of income (Ali 1990).

The full extent of reforms, especially the institutional type, may extend well beyond the usual administrative life of a program loan (typically 3 years). An expectation by stakeholders of short-term tangible impacts may result in them limiting their efforts at the margin—especially if politically unacceptable losses of longer-term benefits or a possible policy reversal are expected (McMillan, Rodrik, and Horn Welch 2002). There may be a case for a more extended implementation time horizon for institutional programs with tranches being released when the institutions concerned are "ready" for the next phase as opposed to being driven by two or three closely spaced and difficult to absorb quick-disbursing tranche releases.

However, even when the administrative implementation period of policy-based loans is short and disbursements are quick, their full effects are often not felt until well after the program loan is closed. This is a feature that distinguishes them from projects. The dynamic nature of policy change effects also points to the need to use, to the extent possible, analytical methods that provide insights on the changes over time, rather than methods that simply suggest the static position.

The above points help in understanding what constitutes the costs of adjustment. First, there are the costs of the process of adjustment including structural and institutional changes, attendant resource reallocation and market realignments, dislocations, and reabsorption into new structures, for losers as well as gainers. Understanding this process and its implications is essential for policy makers, businesses, trading partners, and employees, among others, to assess the possible impacts and responses to policy changes. Many of these changes take place over time as adjustments occur and cannot be fully anticipated. As such, some costs, including the costs of uncertainty, are intangible while the benefits are often not immediately realized. Nevertheless, policy analysis can help assess these changes and identify, to the extent possible, the range of economic costs of the equilibrating process, both tangible and intangible, to the economy and to stakeholders.

Second, there are the real financial costs of the equilibrating or institutional change, such as compensatory payments,

loss of revenue, new recurrent costs, and other changes in public expenditure. Hence, while a price or institutional analysis may reveal a clear net welfare gain from policy reform, the tangible and intangible costs and processes of adjustment require close examination and clear articulation to help decision makers and stakeholders understand the likely process.

2. Distribution Implications of Reforms

Closely related to the lagged effects and intertemporal issues of policy change are the issues of resource reallocation that can occur as a result of reforms, the implications for intra- and intertemporal distribution of income, and compensation for losers—assuming that there is a net welfare gain for society (Ali 1990). This also implies that any aggregate effects will have to be disaggregated in terms of their incidences to different stakeholders. Here, it is important to note the two types of distribution effects of reforms:

- the intended effects that, if the reforms are successful, should be enduring in the prevailing environment; and
- the unintended effects that occur as part of the adjustment process, but that, over time, should be overcome and corrected as resource reallocation proceeds.

Where distribution effects arise, identifying who gains and loses from reform options is important, given the effects that distribution can have on the selection and support for policy options. In the case of price policy changes, this could affect, for example, consumers and producers differently. In the case of fiscal policy reforms involving, for example, changes in revenues and expenditures, these could lead to losses or gains to governments, taxpayers, and beneficiaries of services.

Understanding distribution effects on consumers, producers, and governments, all of whom are potential gainers or losers, can help in:

- handling policy conflict and trade-offs between efficiency and distribution;
- designing and implementing reforms to mitigate or offset any possible negative effects on particular groups; and
- raising understanding among stakeholders—both gainers and especially losers—in the event of a redistribution of resources and income.

Public debate about the distribution impacts of policy change often focuses on the short-term or direct effects of reforms on individuals and households, as well as on businesses and resource owners (Productivity Commission 2001, p. 23). The indirect effects are often less evident, despite their importance in improving the aggregate future situation and the tendency for losers to also become gainers as adjustments occur. This point is stressed with policy changes because, unlike projects (except for those that are extremely large relative to the size of the economy), the effects of policy changes can be economy- and sector-wide.

The impact of adjustments resulting from reforms has been of concern for

well over a decade, especially in terms of the unintended effects on the poor (a framework for which was elaborated on in Chapter 5). As described, where reforms clearly have negative effects on certain groups, mitigation or compensation for losers may be needed. This can be approached by, for example, taxing winners to compensate losers through public funds and resources. However, constraints on related increased short-term taxation may require budget outlays beyond the capacity of existing fiscal resources and necessitate the mobilization of real resources to effect compensation, thus incurring an economic cost of adjustment. Consequently, program loan financing can help meet financing requirements if it is shown to be feasible. Alternatively, mitigation may be considered as a separate operation.

3. Political Economy Considerations

The discussion above shows how the intertemporal and distribution effects highlight political economy considerations of policy change. Clearly, reallocation of resources, redistribution of income, price changes, changes in access to and the cost of services, and changes in transfers all affect the status quo. In turn, this may generate resistance to reform measures among vested interests.

In principle, governments can resolve choices between conflicting policy objectives by weighing priorities accorded to each one of them. However, in practice, governments may be less than precise or consistent in their

objectives. This may leave the resolution of trade-offs problematic. Critically, influential vested interests can be key obstacles to any kind of trade-off process.

As discussed in Chapter 3.F, Sadoulet and de Janvry (1995) emphasize the distinction between political feasibility on the one hand and efficiency and welfare on the other, stressing the point that any policy reform should first satisfy the constraints of political feasibility. It then becomes important, in advance of the passage of the reforms, to identify and understand who constitutes the various groups affected by and opposed to the reforms. The need, magnitude, and practical considerations for possible mitigation or compensation require careful assessment.

For example, while a relatively discrete group such as retrenched SOE workers could be provided for in terms of temporary loss of earnings and retraining, it is virtually impossible to compensate all poor urban households who may be negatively affected by devaluation. Additional measures are only likely to be appropriate where the social safety net and other generally available measures are ineffective or do not fully address relevant impediments. The range of possible additional measures includes direct compensation, and other specific adjustment assistance such as reskilling, workforce programs, and targeted social science assistance programs (Productivity Commission 2001).

It is also generally easier to identify short-run costs than long-term benefits. But even in the short run, some costs are uncertain and, in part, will be a function of the timing and sequencing of the policy reforms, and of the internal and external economic and financial resources made available as part of the reform program. Likewise, economic benefits cannot be guaranteed. Political economy factors and unforeseen exogenous shocks may throw policy reforms off course. Program outcomes may be very different from those anticipated. The size of more certain short-run costs, compared with uncertain medium- and long-term benefits, may also make stakeholders unwilling to embrace the reform program. However, this uncertainty should not be viewed as a constraint in assessing program costs, benefits, and outcomes.

The outcomes of reforms will be further influenced by the structural characteristics of the economy concerned, especially with respect to the existing distribution of productive assets and the severity of the macroeconomic situation which, among other factors, led to the adoption of the reform package in the first place. If economy-wide stabilization and structural adjustment programs are still being implemented or have in some sense failed, at the same time as sector reforms are being implemented, the absorption costs of the stabilization and structural adjustment reforms will represent additions to the costs imposed by sector reforms. Furthermore, as economy- or sector-wide policy changes do not usually occur in isolation, it may be difficult to identify, in advance, the response from other influences (Productivity Commission 2001). Kasper (1999)[24] notes the problems associated with ex-ante attribution of adjustment costs to specific policy measures. These constraints support the use of a fiscal framework analysis.

C. Fiscal Environment for Policy Reforms

Policy changes affecting public institutions, spending, and revenue require assessment of their fiscal impact. Figure 6 provides a stylized representation of an institutional reform, such as civil service reform. To achieve the anticipated improved performance, a period of adjustment is required, which will incur costs. Importantly, unless the reformed institution receives sufficient recurrent spending to consolidate and sustain the changes, performance is likely to decline even in its reformed state. As such, adjustment costs may be seen as an investment in a new policy "asset," followed by the need for appropriate recurrent spending to maintain the new policy asset. The key difference between recurrent cost implications arising from reforms, compared with a project, is that the former can often be sector-wide.

Viewing policy reform as the creation of an asset requiring maintenance spending implies that understanding is needed of the net fiscal impact of reforms in relation to the overall fiscal

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[24] P. 145, as cited in Productivity Commission 2001, p. 16.

FIGURE 6: Relationship between Policy Reform and the Medium-Term Expenditure Framework
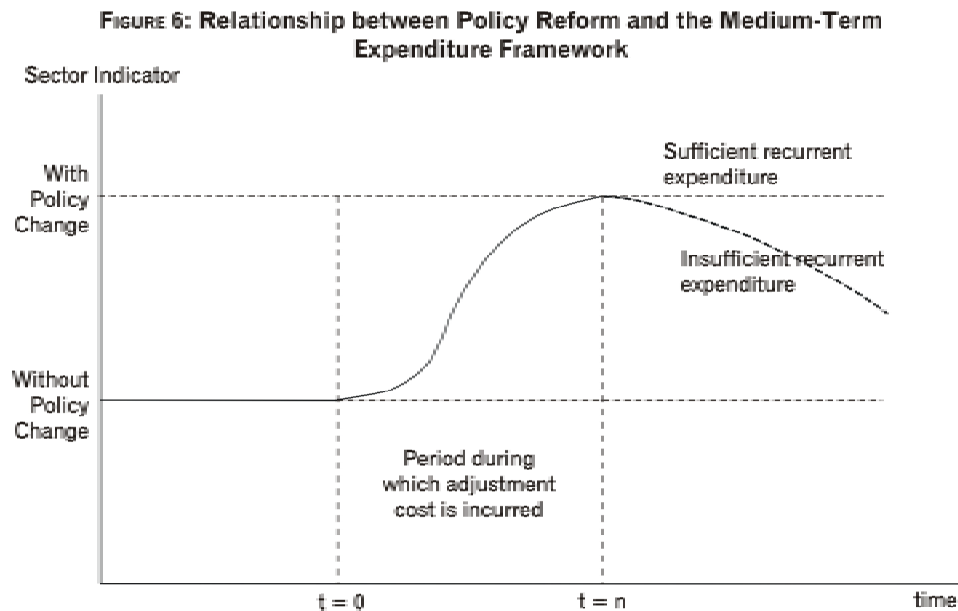
situation. This can be done through assessment of a country's present medium-term fiscal framework (MTFF). The MTFF provides the basis for assessing whether government has the necessary fiscal space to carry out both its overall reform program and specific reform measures. The following questions, especially for reforms with fiscal implications, can be asked in relation to the MTFF:

- What is the existing net fiscal situation, including both revenues and expenditures?
- Will new sources of revenue be generated, how much and when?
- Will increases in recurrent costs arising from reforms be passed on to service users and has their willingness to pay been assessed?
- Does the policy reform add to public expenditure and, if so, in what ways?

- Will the reforms facilitate the realization of budget savings and when do they appear?
- What are the real financial costs over time of effecting the policy change, including consolidation or recurrent costs?
- What is the difference between the financial costs of reform and the government's net fiscal position? This provides an indication of the gap in financial resources needed to implement and sustain the reform.

The MTFF should cover the "without reform" stage, through the "with reform" adjustment process, up to the consolidation stage.

Gradual budget realignment in response to institutional change and capacity building is addressed in a number of

ADB program loans, such as the FSM Private Sector Development Program. In addition to the adjustment costs or "asset creation" stage, the steps used to assess the recurrent budget implications of reform-driven institutional changes related to realigning and strengthening services include:
- assessment of the "without program" resources on an agency-by-agency basis and of overall government;
- assessment of the resources needed with program staff and nonstaff budget requirements for reformed and strengthened agencies;
- identification of the capacity to meet incremental recurrent costs by local and national governments and agencies;
- assessment of executive and legislative branch support for realigned budgets;
- assessment of budget cycles and the period needed to hire, train, and introduce the delivery of realigned services; and
- preparation of a multiyear budget and analysis of possible external support needs during the transition.

The assessment of the fiscal impact of the policy reform complements the economic assessment in the same way that the financial and economic evaluations of a project complement each other. The financial analysis provides pertinent information on fiscal impact and affordability by the government in a fiscal context. The financial assessment of the adjustment process and of the recurrent spending needed to sustain the policy reform

provides valuable insights into aspects such as efficiency gains and distribution.[25]

Assessing the dimensions of a reform process can assist policy analysts in understanding how the reform will work and in identifying the nature of costs and benefits. Understanding the intertemporal dimensions provides an idea of the timing of the costs and benefits. Assessment of the distribution aspects is necessary to identify the gainers and losers, possible costs involved in facilitating a realignment of resources, and how to manage levels of public expenditure. Attempting to "soften" transitional impacts can involve both real financial and economic resource costs. Where there are political economy implications from reforms, the costs of managing and sustaining reforms need to be weighed. While precise quantification and valuation of the economic costs and benefits of a reform process may be difficult, an understanding of the nature of costs and benefits, and how, when, and on whom they will impact, will help analysts and policy makers develop a judgment as to whether the reform is feasible.

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[25] Appendix 4 provides an inventory of how the identifiable cost aspects of reforms were assessed in recent ADB program loan reports.

CHAPTER 7

INCORPORATING POLICY CHANGE ASSESSMENTS INTO PROGRAM DESIGN

- Integrating Policy Analysis and Program Design
- Conditions as a Guide to Implementation
- Linking the Program Framework and Reform Monitoring

A. Introduction

The preceding chapters have examined a number of analytical aspects that underpin the preparation of policy-based operations. Macroeconomic assessment and sector diagnosis are aimed at identifying policy- and institution-related binding constraints that hinder the development of a sector. At the same time, the outcomes and potential impacts of the policy reforms need to be assessed with appropriate analytical tools. The reform process is analyzed to better understand its dimensions and dynamics as well as the fiscal implications of facilitating the process. Particular attention is paid to assessing the potential impact of policy changes on the poor and, in turn, to consider appropriate mitigating measures to overcome negative impacts. The findings from this analysis should inform and influence the design of any new policy-based operation. This concluding chapter discusses integration of analytical results into the operation's design, and implications for the design of loan conditions and monitoring.

B. Integrating Policy Analysis and Program Design

As part of preparing the groundwork for ADB's policy-based operations, three key matrixes are used to highlight essential analytical results and design features: the PIA matrix; the program logical framework; and the policy matrix.[26] A common thread is that they can all be used as effective design tools, rather than reporting frameworks.

The three matrixes represent different perspectives on a policy-based operation and so their internal logic should be presented in a coherent and well-integrated way. First, the cause and effect mechanisms of policy changes identified in the PIA matrix, which affect both the poor and other stakeholders, highlight the assumptions that underlie the program logical framework.[27] The connection between mitigation and enhancement measures in the PIA matrix and the program logical framework should also be clearly linked. Second, as the outputs of the program logical framework typically represent the culmination of a series of activities and steps that results in the completion of policy action, there should be a clear connection between the major outputs in the program logical framework and the policy matrix. In effect, each policy condition in a policy matrix should be linked to the corresponding cell in the program logical framework. Figure 7 illustrates these links.[28]

Putting the three matrixes together will present essential features of the cause and effect analysis, economic logic and rationale, reform processes, and expected impacts of

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[26] These three matrixes are discussed in more detail in Chapter 5.

[27] For a full description of applying logical framework to ADB operations, see "Using the Logical Framework for Sector Analysis and Project Design: A User's Guide" by C.D. Saldanha and J.F. Whittle, Manila, 1998.

[28] A thorough attempt was made in the Uzbekistan Education Sector Development Program to effect these linkages. Case 3 in Appendix 3 illustrates this point by further extending the presentation in the program loan report.

FIGURE 7: Integration of the PIA Matrix, Program Logical Framework, and Policy Matrix

Poverty Impact Assessment Matrix

Channel of Effect	Effects on the Poor			Effects on Other Stakeholders	Mitigation or Enhancement Measures
	Direct Short Run	Indirect Short Run	Indirect Medium Run		
Access to Labor Markets, Wages			1		2
Access to Markets and Prices					
Access to Assets					
Access to Public Services					
Access to Transfers					
Net Impact					

Program Logical Framework

Design Summary	Performance Targets	Monitoring Mechanisms	Assumptions and Risks
Impact: medium- to long-term impact of this and related programs			
Outcome: the reason why this program is being done and the expected end-of-program change			1
Outputs: the specific deliverables of this program	3		
Activities: the main tasks to accomplish outputs and effect policy measures	2		

Policy Matrix

Policy Area and Measures	Tranche 1 Policy Actions	Tranche 2 Policy Actions	Tranche 3 Policy Actions
Policy Area 1 consistent with program framework purpose			
Policy Measure	3		
Policy Area 2			
Policy Measure	3		

1 - Effect analysis summary, assumptions, and risks.
2 - Actions to mitigate negative impacts of reform measures or enhance inclusion of poor groups.
3 - Policy actions and outputs.

CHAPTER 7

the policy operation. The resulting clear yet simple picture is fundamental to providing an informed and common base for public discourse. This will help stakeholders understand the specific measures that will help them during the reform process. Their understanding is a prerequisite for successful reform implementation.

C. Conditions as a Guide to Implementation

An integrated perspective of policy reform operations provides new insights into the appropriate function of policy conditions, that is, it serves as a guide to implementation. Once the main policy changes have been determined, conditions in policy reform embody the key reform milestones by setting out reform steps agreed to by the government and funding agency, including preconditions, or trigger actions for loan release compliance, and subsequent tranche releases.

In this sense, conditions can take on an administrative function for loan implementation. However, conditions and a rigid implementation time frame should not be used excessively, for two main reasons. First, they can detract from the broader issues of the reform process and the possible need for midcourse corrections where evidence supports modifications. Second, where capacity for reform implementation is limited or not fully understood, they can raise expectations on immediate realization of reform benefits among intended beneficiaries and other stakeholders, leading to later disappointment if results fall short of expectations. These, in turn, can weaken commitment to the reform and

can lead to policy reversals and program cancellation.

To avoid such risks, a focus on results-based conditions and outcomes is preferable to an extensive list of detailed compliance conditions. It is also preferable to take a sequenced approach to implementation. Better consideration of complex intersector and institutional situations and of the overall developing medium-term fiscal situation would also be a feature of such an approach.

Given the wide range of reform circumstances facing governments, selection of the right program loan modality is a crucial design decision.[29] The integrated perspective highlighted above provides further insights regarding the choice of operations modality. ADB's program lending policies and modalities have evolved over time to accommodate emerging and special needs of governments in developing Asia. The present range of program loan modalities offers the necessary flexibility to adapt program design to individual circumstances, from support for IMF stabilization efforts or related operations, to sector-wide and subsector structural adjustment operations that may involve complex sequencing of reforms and development measures. When used to the full potential offered by ADB's program loan policy and available modalities, their operational flexibility can accommodate a medium-term perspective on policy reforms and the sequencing of reform

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[29] For a full discussion of ADB's program lending policies and modalities, see ADB, 1987, 1996, 1999.

steps necessary for complex, unfolding operations, as well as dovetailing with a medium-term fiscal framework to ensure reform measures are "on budget."

D. Linking the Program Framework and Reform Monitoring

Figure 7 highlights the usefulness of the program logical framework as a means of reflecting key cause-effect issues that have arisen from, for example, sector analysis, reform-related activities, outputs, objectives, and impacts. Applied effectively, the program logical framework should reflect the program's economic logic and rationale, and its performance targets, as well as assumptions and risks—surrounding factors that are

outside the influence of the operation. In this way, the program logical framework provides the monitoring and evaluation logic, including what should be monitored during implementation and how to monitor it. The importance of the logical linkages that emerge from the reforms analysis and the need to monitor how reform measures help realize intended benefits and outcomes over time are depicted in Figure 8.

A detailed discussion on monitoring and evaluation is beyond the scope of this paper[30] but a few, final, observations highlight the importance of complementing ex-ante analysis with enhanced monitoring and evaluation. In addition to monitoring identified

FIGURE 8: How Reforms Confer Benefits: Program Logical Framework and Economic Analysis Links
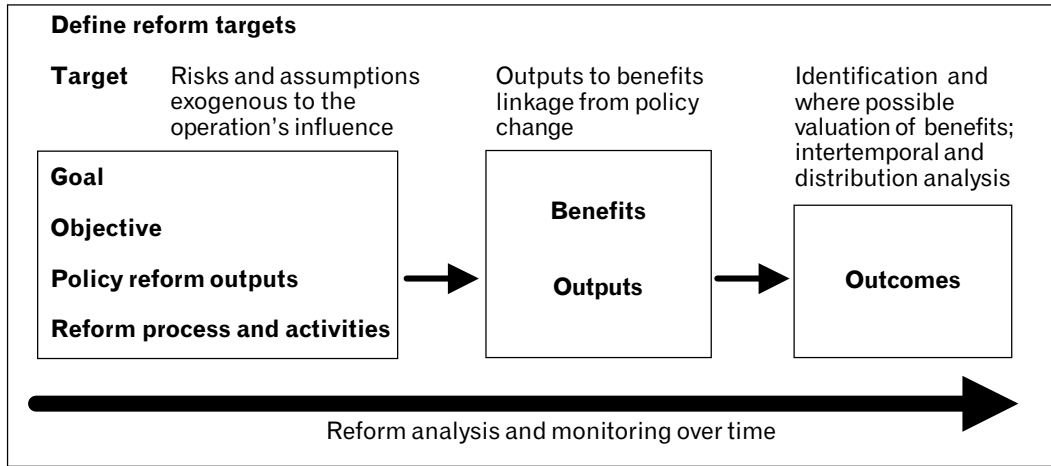
Source: EREA, Asian Development Bank.

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[30] ADB's monitoring and evaluation efforts are guided by its Operations Evaluation Department. The Project Performance Monitoring System is the primary monitoring and evaluation system used for programs.

exogenous factors that might affect a reform, close monitoring, analysis updates, and regular reassessment of requirements based on progress become essential reform support activities.

Specific reasons for ensuring an adequate monitoring effort as the operation unfolds include the following:
- It can provide improved understanding where the up-front analysis is limited by data and related analysis on problems and response, as well as by feedback effect uncertainties.
- This improved understanding, especially where behavioral responses could be variable or less predictable, will help accommodate and justify flexibility in implementation and conditions.
- On-site monitoring with real-time results improves the management of the reform process.
- Monitoring the key indicators in the program logical framework can provide early indications of possible problems and the basis for modifications.

Such a monitoring effort requires strong capacity to be in place to be effective. Countries with weak database and statistical systems would need capacity building and sufficient funding. Monitoring and evaluation at the public sector reform program level, for example, requires expanded operational capacity and stability in staffing and managerial guidance. However, a more pressing policy challenge is to redress the low priority often accorded to monitoring and evaluation.

Integrating analytical results into an operation's design provides the basis for monitoring and, as necessary, further operation-related research to analyze key policy variables, impact effects, and the need for midcourse corrections. Analytical and monitoring dimensions that are well integrated into the design process and sufficiently well understood and accepted by stakeholders will improve the prospects for a relevant and feasible policy-based operation and for a favorable outcome.

APPENDIX I

PROGRAM LOAN REPORTS REVIEWED

Loan Number	Title	Date of Board Approval	RRP Document Number
1485	VIE: Financial Sector Reform	19 Nov 1996	RRP: VIE 29138
1509	MON: Financial Sector Program	19 Dec 1996	RRP: MON 28200
1568	MON: Health Sector Development Program	04 Nov 1997	RRP: MON 28451
1589	KAZ: Pension Reform Program	16 Dec 1997	RRP: KAZ 31091
1611	THA: Social Sector Program	12 Mar 1998	RRP: THA 31606
1618	INO: Financial Governance Reforms (Sector Development Program)	25 Jun 1998	RRP: INO 31660
1680	PAK: Trade, Export Promotion and Industry	31 Mar 1999	RRP: PAK 23427
1734	VIE: State-Owned Enterprise Reform and Corporate Governance Program	21 Dec 1999	RRP: VIE 30058
1800	SRI: Private Sector Development Program (Subprogram I)	12 Dec 2000	RRP: SRI 31382
1873	FSM: Private Sector Development Program	12 Dec 2001	RRP: FSM 33314
1961	UZB: Education Sector Development Program	06 Dec 2002	RRP: UZB 34160
997/8	PNG: Agriculture Program Loan	12 Dec 1989	RRP: PNG 22355
1406	KAZ: Agriculture Sector Program	23 Nov 1995	RRP: KAZ 28449
1445	CAM: Agriculture Sector Program	20 Jun 1996	RRP: CAM 27154
1458	LAO: Second Financial Sector Program	12 Sep 1996	RRP: LAO 26563
1466	COO: Economic Restructuring Program	26 Sep 1996	RRP: COO 30346
1506	IND: Gujarat Public Sector Resource Management Program	18 Dec 1996	RRP: IND 29458
1513	RMI: Public Sector Reform Program	30 Jan 1997	RRP: RMI 29658
1520	FSM: Public Sector Reform Program	29 Apr 1997	RRP: FSM 29657
1608	SAM: Financial Sector Program	19 Feb 1998	RRP: SAM 32050
1618	INO: Financial Governance Reforms	25 Jun 1998	RRP: INO 31660
1622	INO: Social Protection Sector Development Program	09 Jul 1998	RRP: INO 32255
1624	VAN: Comprehensive Reform Program	16 Jul 1998	RRP: VAN 31485
1627/8	SOL: Public Sector Reform Program	27 Aug 1998	RRP: SOL 32157
1661	NAU: Fiscal and Financial Reform Program	16 Dec 1998	RRP: NAU 32104
1662	PHI: Power Sector Restructuring Program	16 Dec 1998	RRP: PHI 31216
1673	INO: Power Sector Restructuring Program	23 Mar 1999	RRP: INO 31604
1675	INO: Health and Nutrition Sector Development Program	25 Mar 1999	RRP: INO 32516
1693	TUV: Island Development Program	13 Jul 1999	RRP: TUV 31538
1738	INO: Industrial Competitiveness and Small and Medium Enterprise (SME) Development Program	16 Mar 2000	RRP: INO 31644
1739	PHI: Grains Sector Development Program	24 Apr 2000	RRP: PHI 30087
1762	BHU: Health Care Reform Program	21 Sep 2000	RRP: BHU 33071
1779	KAZ: Farm Restructuring Sector Development Program	14 Nov 2000	RRP: KAZ 30106
1803/4	IND: Gujarat Power Sector Development Program	13 Dec 2000	RRP: IND 29694
1807	PAK: Energy Sector Restructuring Program	14 Dec 2000	RRP: PAK 32146
1821	MON: Agriculture Sector Development Program	21 Dec 2000	RRP: MON 31212
1859	CAM: Financial Sector Program (Subprogram I)	15 Nov 2001	RRP: CAM 32431

Note: The first 10 RRPs in the table are the original RRPs referred to as the core program loan reports in the main text.

APPENDIX 2

ADB EXPERIENCE ON THE MACROECONOMIC CONTEXT SECTION OF PROGRAM LOAN REPORTS

This appendix reviews the discussions on the macroeconomic context section that emerge from an examination of the 10 core program loan reports. Primarily, the quality of assessment of the macroeconomic context in the program loan reports is uneven, and is sometimes compounded by the lack of identification of variables that may result in critical feedback effects.

A. Key Points on How to Improve the Discussion of the Macroeconomic Context

1. Presentation of the Macro-economic Context. There is variability among the program loan reports in terms of the data presented, economic projections, macroeconomic assessment, and the relevance of the macroeconomic context. Inconsistency arises due to lack of a clear application of the macroeconomic assessment in developing the reform program, as well as uncertainty on how to effectively and efficiently undertake such assessment. The ultimate goal should be to identify the critical macro-meso-micro linkages that will affect the costs, benefits, and risks to the reform program. Recommended coverage should include: (i) a review of economic growth performance, (ii) assessment of macroeconomic management performance, (iii) discussion of key structural policies, (iv) outlook for economic performance over the relevant program period, and (v) a summary of the macroeconomic linkages and assumptions to be included in the macroeconomic framework.

2. Data Presented. A discussion of the macroeconomic context should include a minimum set of key indicators. There is inconsistency across the program loan reports in terms of data presented even though ADB's economic reports and country strategy and program documents provide an accessible and standardized set of economic indicators. However, additional details may need to be provided by the analyst. Tables presented in the program loan reports should include precise definitions of variables reported. It is also important to consider the quality of the data being presented and their appropriateness to the analysis. For example, aggregate investment data for many least-developed countries is often imprecise. Sector decompositions of investment should be interpreted with care in countries with high levels of public sector or SOE investment, or programs that would channel investments to favored sectors.

3. Economic Projections. The program loan reports usually include a section on medium-term prospects and projections. However, these sections often do not distinguish between ADB staff projections and government macroeconomic targets and development goals. ADB projections for the next 2 years for key indicators are readily available in the annual *Asian Development Outlook* and should be used as appropriate. However, because ADB does not generally provide long-term projections, it is acceptable to use government targets and development goals where the program horizon makes

long-term projections necessary. In cases like these, the program loan report should clearly identify government targets and projections and critically assess the reasonableness of the data.

4.   Macroeconomic Assessment. The program loan reports generally do not exhibit a consistent and systematic approach to progressive discussions of past trends, current performance, and prospects. Moreover, there is a tendency to support broad conclusions with limited information. This can be avoided by adhering to a standard format (in which discussion of prospects is kept separate), and by having a thorough familiarity with macroeconomics and the unique characteristics of a particular economy. Where judgments are to be made regarding recent economic performance and reform programs, a number of criteria should be used, including, as appropriate, trends in growth of output and incomes, employment, income inequality, and poverty.

5.   Relevance of the Macroeconomic Context. While the description of the macroeconomic context is adequate in some cases, its relevance and linkage to the subsequent sector and program description are, often, unclear. The description can be pro forma and superfluous to the program loan report, and may miss key macroeconomic influences on the sector and the subsequent program. To avoid the tendency toward a mechanical review, a final section of the macroeconomic context section of the RRP should provide an overall

assessment of those macroeconomic factors that are most critical to policy operations. These should form the basis of the macroeconomic framework.

B. Basic Considerations for Improving Macroeconomic Assessment for Policy Operations

As discussed in Chapter 2, a sufficient understanding of the macroeconomic environment is needed to gain insights into the context and possible feedback effects of sector reform measures. The basic minimum for the assessment, concerning the review of key macroeconomic indicators, usually presented in a series of 5 or more years plus projections as appropriate, provides a minimal snapshot of the macroeconomic environment. In the ADB context, analysts should be careful in properly defining and accurately reporting this data set (2-year projections for this standard set). The data set may need to be expanded to provide a more complete picture of the macroeconomic context, depending on the specifics of the policy reform exercise and after these key indicators have been used for preliminary perusal. (Key macroeconomic indicators for Cambodia are provided in Table A2.1 as an illustration.)

Several other points are emphasized. First, it is not necessary for the analyst to undertake a detailed assessment of the macroeconomic performance of the economy. A country economist at ADB is an important resource person for a policy operation, whose expertise should be used. Second, the analysts should be

TABLE A2.1: Key Economic Indicators

Item	1997	1998	1999	2000	2001[a]
Output Growth					
GDP per capita ($, current)	281	247	264	261	259
GDP Growth (percent, in constant prices)	4.3	2.1	6.9	7.7	6.3
Agriculture	5.5	3.0	0.0	(0.3)	3.9
Industry	21.3	7.3	13.2	34.6	15.5
Services	(2.6)	0.7	7.1	5.8	2.9
Savings and Investment					
(current and market prices)		(%	o f	G D P)	
Gross Domestic Investment (% of GDP)	14.3	11.3	15.9	13.5	17.9
Gross National Savings (% of GDP)	9.0	9.5	11.8	6.9	9.6
Money and Inflation		(annual	%	change)	
Consumer Price Index	9.1	12.6	0.0	0.5	(0.5)
Money Supply (M2)	16.6	15.7	17.3	26.9	20.4
Government Finance		(%	o f	G D P)	
Revenue and Grants	9.0	8.3	10.6	11.0	11.4
Expenditure and On-lending	13.0	13.8	14.5	16.3	17.5
Overall Fiscal Surplus/(Deficit)	(4.0)	(5.5)	(3.9)	(5.3)	(6.0)
Balance of Payments					
Merchandise Trade Balance (% of GDP)	(7.1)	(5.8)	(8.3)	(7.8)	(6.6)
Current Account Balance (% of GDP)[b]	(8.2)	(6.9)	(7.8)	(7.6)	(6.4)
Merchandise Export ($) Growth (annual % change)[c]	81.0	13.0	17.9	53.2	9.9
Merchandise Import ($) Growth (annual % change)[c]	5.8	1.6	27.0	37.1	5.2
External Payments Indicators					
Gross Official Reserves (including gold, $ million)	262	390	422	485	548
(in weeks of current year's imports of goods)	10.6	16.2	16.1	14.2	15.3
External Debt Service (% of export of goods and services)	1.2	2.1	1.6	4.0	4.0
Total External Debt (% of GDP)	62.9	71.3	67.4	65.5	64.2
Memorandum Items:					
GDP (current prices, KR billion)	9,778	11,364	12,587	12,932	13,365
Exchange Rate (KR/$, average)	2,991	3,774	3,814	3,859	3,924
Population (million)	11.6	12.2	12.5	12.8	13.1

( ) Negative.
GDP = gross domestic product.
[a] Provisional.
[b] Excluding official transfers.
[c] Some imports are reexported to neighboring countries, e.g., Viet Nam.
Data sources: Ministry of Economy and Finance, National Institute of Statistics, National Bank of Cambodia, International Monetary Fund, and ADB staff estimates.
Source: Cambodia Country Strategy and Program Update (2003–2005).

cautious about importing into the policy framework the analysis conducted by another institution. For example, the IMF reports, which are produced specifically for IMF operations, may not cover aspects of the economy crucial to the policy, may contain targets for key indicators rather than projections, or may base some projections on assumptions that are not made explicit. Thus, externally produced reports should be treated only as sources of information. Third, the analysts should focus on answering key questions about the macroeconomic context in the assessment, and not on a pro forma review. Fourth, the depth of the discussion in each section of the analysis will depend on its importance to the analysis of the reform measures.

Appendix 2

APPENDIX 3

CASE ILLUSTRATIONS FOR APPLICATION OF ANALYTICAL TECHNIQUES

A. CASE 1. Agricultural and Food Policy Decisions in the Federated States of Micronesia: Applications of Partial Equilibrium Analysis

1. Policy Issues Addressed

The issues in agriculture and food facing developing countries are varied and complex. Their nature and relative importance depend not only on the physical circumstances affecting agricultural production, but also on a complex interaction of social and economic factors that may provide incentives or discriminate against agricultural production and markets. Factors that are under the ownership and control of farmers, such as land, labor, and capital resources, are termed endogenous. Factors that are beyond the control of farmers, such as market demand, and product and input prices, are termed exogenous. It is the exogenous factors that policymakers may wish to influence, giving rise to distortions in production systems and markets. The type of exogenous factor interventions depends on the main objectives of agricultural policy, which may include the following (Streeten 1987):

- improving the efficiency of resource allocation in agriculture to raise food production and its productivity;
- accelerating economic growth through the balanced expansion and support for agriculture with respect to other sectors;
- eliminating malnutrition by emphasizing expanded small farmer production, employment creation for the landless, and the reduction of rural-urban differentials and migration;
- improving food security through price and supply stabilization; and
- maintaining political stability.

Unfortunately, the interventions required to meet these policy objectives are frequently contradictory within the agriculture sector itself and, more significantly, between agriculture and other sectors, such as the industrial and urban-based sectors. A policy that subsidizes the prices of inputs for agricultural production to increase supply can result in production inefficiencies and resource allocation distortions, as well as being a burden to government budgets. Similarly, lowering food prices to consumers can cause a fall in production and market distortions. Raising domestic food prices to producers increases the cost of living for consumers and reduces the competitiveness of local producers. In the interests of promoting food security or self-sufficiency, government production projects and marketing agencies may be introduced to ensure that food supplies are available. But these efforts frequently become inefficient and undermine the development of markets. Pursuing or proposing policy changes without understanding even basic price and market implications often leads to recommendations that are either ignored in favor of politically preferred options, or adopted without an understanding of their negative implications.

2. Technique Description and Application

a. Policy Analysis Matrix

Given the array of potential policy interventions that can be used to influence production, prices, and markets, it is necessary that adequate analysis of the effects of interventions is carried out to avoid undesirable

impacts, or at least to understand the trade-offs of a policy decision. This is especially true where data on supply and demand are needed to assess the impact of policies that results in improved production. The effect of subsidies, tariffs, or quotas should, likewise, be analyzed. However, the lack of available data and time constraint frequently limit the extent of analysis possible. In such situations, simplified methods may need to be relied upon.

A useful methodology, based on simplified partial equilibrium analysis, is the policy analysis matrix (PAM).[1] The PAM technique was developed to, at the least, provide key indicators on the market distortions arising from policy interventions on vertical commodity systems (i.e., the production of a commodity from the farm level all the way up to its final market). The PAM is based on principles of partial enterprise budgeting using the basic business relationship: **Revenue – Costs = Profit.** Use of this principle has the practical advantage that a great deal of data are available (e.g., from farm

management or farm household surveys) or the data can be easily generated, often as a matter of course in typical agricultural sector and project work. The technique also allows policy to be analyzed directly in the context of easily recognizable enterprise profitability as a major concern to farmers. The PAM's key application is in the static analysis of distortions arising from government policy intervention as opposed to distortions from endogenous factors.

The means by which the PAM assesses the divergence between market and efficiency prices is to value revenues from enterprise sales, costs of production, and profit in market or financial prices and in economic prices. Table A3.1 lays out these elements in a form recognizable as a basic farm budget.[2]

The budget in the first column represents the costs, revenues, and profits of an enterprise at market prices. The second column is the same budget but using economic prices. The third column is the divergence or the difference between the respective items in the first and second

TABLE A3.1: Elements of the Policy Analysis Matrix

	Financial Prices (f)	Economic Prices (e)	Transfers (t)
Revenues	Rf	Re	Rt
Cost of Domestic Resources and Nontradable Inputs	DFf	Dfe	DFt
Cost of Tradable Inputs	TIf	TIe	TIt
Profits	Pf	Pe	Pt

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[1] Developed by Scott Pearson and first published as *The Policy Analysis Matrix for Agricultural Development*, Cornell University Press, 1989

[2] Adapted from *Agricultural Policy Analysis*, Jonathan Kydd, Wye College External Programme, University of London, 1998.

columns, and represents economic transfers and distortions in resource allocation and/or the market, or improvements to efficiency that arise from the policy intervention. Separating the "costs" element into domestic resource costs and tradable input costs permits analysis of the policy's impact arising from the relative use of domestic non-tradable factors of production, in relation to tradable inputs (the latter are purchasable locally or imported). Domestic resources may include, for example, labor and capital charges such as interest on bank loans, licenses, and taxes. Tradable inputs may include seed, fertilizer, and chemicals, fuel, equipment and machinery. Revenues under market costs are the actual prices received by farmers or traders. Where a subsidy, tariff, or quota is used, this will raise the market price above economic prices. In order to assess the economic effects of these policies, it is necessary to convert market prices to economic prices. In the case of the FSM, this is done using border prices for imports (c.i.f. from the United States West Coast as the main source of food imports) or exports to Guam as a proxy for regional market prices.[3]

The information provided in the PAM permits analysis of a variety of policy interventions that affect prices: taxes and subsidies on inputs and outputs; factor-market policies such as wage and land policies; and basic aspects of macroeconomic policy, especially exchange rate policy, the subsidy and tax aspects of fiscal and trade policies. In addition, the relative efficiency of

commodity systems in addressing the promotion of domestic factor markets, such as employment, can be assessed using PAMs, as well as the comparative advantage of different enterprises in domestic and export markets and their ability to meet import-substitution policy objectives. To do this, the PAM uses a series of indicators and ratios arising from the matrix. Seven of the most useful ratios are described in the following section with reference to policies and projects currently under discussion in the FSM. A concept that is frequently used in PAM indicators is that of value added, which is the value of the output less the cost of inputs, and provides the returns to factors used in production. Its importance is reflected in the PAM's indicators as follows:

b. Ratio Indicators

Private Cost Ratio (PCR) =

$$DFf/(Rf - Tlf)$$

PCR is the ratio of domestic factor costs at market/private prices to the value added created by the enterprise. Enterprises that create a high return to private domestic resources used produce a high value-added in relation to these resources, and will be relatively attractive to the enterprise or owner or manager, i.e., they have a "private" comparative advantage.

Domestic Resource Cost Ratio (DRC) =

$$DFe/(Re - Tle)$$

DRC is the ratio of domestic factor costs at economic prices to the value

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[3] The United States, Guam, and the Northern Marianas Islands are the FSM's main trading partners for agricultural products.

added created by the enterprise also at social prices. Enterprises that are "socially profitable" have a high value-added in relation to domestic factor costs, and have an "underlying comparative advantage." As a rule of thumb, ratios below the value of 1 have super-normal social profits and a high comparative advantage, while those with values exceeding 1 are at a disadvantage. Under a policy that encourages comparative advantage, enterprises with the lowest values should be emphasized while those with high values should be reviewed for possible ways to reduce the tradable input use through greater use of domestic resources. In the FSM examples (Table A3.2), many tropical fruits and vegetables have a value well below 1 and, given the high level of imports and low domestic production, have good potential for competitive import substitution. Semi-intensive poultry units implemented through a donor and government-backed project, however, had a DRC in excess of 8 (and would be higher still if other costs were estimable). This means that the returns to domestic resources and the relative comparative advantage were both low. In addition, the high cost of imported inputs such as feed and day-old chicks significantly reduced the foreign exchange savings from domestic poultry production. One way to improve, that is lower, the DRC in this case is to change to production methods that reduce the level of dependence on imported feed, provided that local feed sources are also economically competitive. Recommendations that enhance local production methods have a wider adoption rate. Only government-backed projects promote intensive, import-dependent broiler production and have

proven commercially unprofitable without subsidies.

Nominal Protection Coefficient (NPC) =

$$NPC = Rf/Re$$

NPC on tradable commodities/outputs is the ratio of the domestic market or producer price of the commodity to the social or efficiency prices (taken as the border prices as a proxy for world prices). The NPC output ratio is an indicator of producer price competitiveness with respect to world prices (note there is also an NPC for inputs but that is not discussed here). Ratios over 1 indicate that producer prices are high compared to world prices and either producers have some form of protection or prices are set at uncompetitive levels. Ratios of less than 1 are an indication of a tax on produce with farmers as the losers, and government or consumers as the beneficiaries. The limitations of NPCs as indicators include: the difficulties in identifying world and domestic market prices; overvalued exchange rates that will overstate domestic prices and understate the extent of effective taxation; and the implications of input pricing, use, and policy cannot be considered. Given that different enterprises use different production systems and types of inputs, this ratio, if used alone, is a poor comparative indicator.

The Effective Protection Coefficient (EPC) =

$$(Rf-Tlf) / (Re-Tle)$$

EPC is the value added of an enterprise at market or private prices in relation to the value added at social or efficiency

TABLE A3.2: Example of a Price Policy Analysis Matrix[4]

	Units	Quantities A	Quantities B	Market Prices ($)	Conversion Factors	Social Prices ($)	Market Values ($)	Economic Values ($)	Transfers ($)
Revenue/Income									
Wholesale price in capital (batch of 2,700 broilers)	bird/batch lbs/bird	2,700	3	1.05			8,505	6,075	2,430
Import parity price	lbs	8,100	1	0.75	1.00	0.75			
Domestic and Nontradable Inputs									
Hourly wage for labor	hours/batch	1,000	1	1.00	0.75	0.75	1,000	750	250
Building operation costs	$/batch	1	1	200.00	1.00	200.00	200	200	0
Building depreciation	$/batch	1	1	25.00	1.00	25.00	25	25	0
Tradable Inputs									
Imported day-old chicks	no/batch	2,700	1	0.75	1.00	0.75	2,025	2,025	0
Imported feed	lbs feed/bird	2,700	6.6	0.25	0.80	0.20	4,455	3,564	891
Transport outlays	$/batch	160	1	0.25	1.00	0.25	40	40	0
Imported poultry drugs ($0.02 per bird)	no. of birds	2,700	1	0.02	1.00	0.02	54	54	0

Indicators:

Private Profit/Loss ($/batch)	**706**	Return to farmer/management.
Economic Profit/Loss ($/batch)	**-583**	If negative, profitable production can only continue with subsidy, import tax or quota
Private Cost Ratio	0.63	Ratio of domestic costs to value added at market prices.
Domestic Resource Cost Ratio	**2.49**	Ratio of factor costs to value added at social prices. Ratios between 1 and 0 show efficiency.
Nominal Protection Coefficient		
(on tradable outputs)	1.40	Ratio of private prices to economic prices for the commodity.
(on tradable inputs)	1.16	Ratio of private prices to economic/market prices for tradable inputs for the commodity.
Effective Protection Coefficient	**4.93**	Ratio of value added at private prices to value added at economic prices.

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[4] Based on an analysis of poultry production in the Federated States of Micronesia, using a template from Agricultural Policy Analysis, Jonathan Kydd, Wye College External Programme, University of London, 1998.

prices. It has the advantage over the NPC ratio in that it considers the type, source, and cost of inputs in relation to the product's price. As with the DRC ratio, this is useful in identifying methods for improving the economic efficiency of production to overcome problems of lack of competitiveness and market failure.

c. Nonratio Indicators

Private Profits (Pf) =

$$Rf - DFf - Tlf$$

Pf is simply the profitability of the enterprise system to the producer or agency, and represents the basic elements of an enterprise budget. Although it allows the profitability of the individual enterprise to be assessed, the value can only be used to assess one enterprise, and should not be used to compare the profitability among other enterprises. For comparisons, the earlier ratios are superior, particularly the private cost ratio. Where no labor is hired and only family labor is used, it is useful to modify this indicator to differentiate between the return to management and the return to labor. An example of this is given in the FSM poultry PAM. Returns to labor are also useful when compared with the opportunity cost of labor (taken in the example as the minimum wage rate). However, if returns are calculated solely in terms of returns to family labor and management, the profit for a batch of broilers appears much better. This was the basis upon which the original project appraisal estimated the viability of the proposed unit and concluded its worth, despite

the high DRCs and losses in terms of social prices (which were not calculated). In cases where labor data are unavailable or considered inaccurate, an estimation of the returns to family labor and management may, nevertheless, be a useful indicator. In this way, PAMs are a useful tool for assessing the economic and policy implications of a project, as part of the project planning and appraisal process.

Economic Profits (Pe) =

$$Re - DFe - Tle$$

Pe is the same calculation as for private profits but uses efficiency prices, allowing assessment of the economic efficiency of the enterprise. In the poultry example, the result is negative, indicating that the only way the enterprise can survive is with protectionist measures such as tariffs or quotas. This brings into question the project advice to protect poultry farmers, especially as it will result in an increase in the price of poultry to consumers and is likely to draw a political reaction from influential importers and retailers. In comparison, island staples (i.e., fruits and exotic vegetables) are profitable, exhibit comparative advantages, and with a known regional export market. Moreover, the production techniques of island produce are better known to farmers.

Transfers include output and input transfers, and net transfers and are calculated by subtracting the market or private prices from the social or efficiency prices for the respective elements. For example:

$$Pp - Ps = Pt$$

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where Pt is the net of output, input, and domestic factor transfers. The transfer indicators are a means of assessing market failure, distortionary policies, and improvements in efficiency. Where the net transfer value (Pt) is negative, this implies that a subsidy either exists or is required for the enterprise to compete with economic prices. Otherwise, efficiency improvements to production may be required. Where the revenue value (Rt) is positive, this means that the price of the commodity is in excess of the world market or economic price and that prices are either subsidized or there is market failure, as occurred in the FSM. Where there are negative transfers of tradable inputs, this means that a subsidy exists, and the input price is less than the efficiency price. Although not applicable to the FSM, this can also occur as a result of an overvalued exchange rate.

3. Technique Limitations

Despite the usefulness of the conclusions that can be drawn from these indicators, the PAM technique also has inherent limitations. First, the results describe the effects of price distortions but not necessarily the cause, which could extend beyond current government interventions. This makes comparison with a counterfactual, which may be a complex interaction of many endogenous factors, difficult. Structural analysis of the industry is still needed. Furthermore, as the PAM is a static technique that cannot assess dynamic economic behavior and relationships, it should be used cautiously in assessing desirable policy changes to effect structural adjustment and transformation. In some cases,

certain short-term interventions may be desirable to improve longer-term comparative advantage.[5]

4. Conclusion

Given the complex interaction of macro- and microeconomic factors that influence the large numbers of agricultural enterprises and their production-to-market systems, even in a small Pacific island economy, a comprehensive analysis of agriculture and food issues can be daunting, especially when information is in short supply. The risk of a limited analysis can result in a costly error for a project that was designed to fulfill a policy, in this case, of import substitution. The PAM is a useful technique that builds on familiar enterprise budget techniques, which can still be data intensive, but is a reasonable alternative to full supply (and underlying production functions) and demand schedule analysis for which data may not be readily available. In the context of the FSM, the PAM technique has assisted in a better understanding of enterprises that: (i) have comparative and competitive advantages, (ii) create value added in domestic and regional export markets, and (iii) require minimal dependence on government subsidies and other distortionary trade measures. This provides the basis for an initial assessment and for more in-depth and focused policy analysis and project identification in the future.

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[5] A fuller discussion of the limitations of PAM, and its applications, can be found in Food and Agriculture Organization Training Materials for Agricultural Planning, No. 31, J. Harrigan, R. Loader, and C. Thirtle. 1992. FAO Training Materials for Agricultural Planning, No. 31. Rome.

B. CASE 2. Philippines Power Sector Restructuring Program: Tariff Pricing for Cross Subsidies

1. Policy Issues Addressed

In the case of a public power or water supply scheme, in which metering is not prohibitively costly, alternative tariff structures can be a crucial determinant of its benefit distribution profile and poverty impact. Often, there is a trade-off between the aggregate economic efficiency of the supply and its equity outcome depending on the tariff structure. Therefore, the design or reform of the tariff structure is an important part of poverty impact analysis for sector-level reform programs as well as investment projects. ADB's *Guidelines for the Economic Analysis of Projects* (1997b, Appendix 26) provides an illustration of a poverty impact analysis of a water supply project under alternative tariff structures. Here, the context is a sector reform program: Philippines Power Sector Restructuring Program (PPSRP).

The PPSRP seeks to create competitive electricity markets through the privatization of the National Power Corporation (NPC) and the provision of open and equal access to transmission and distribution. Electric power in the Philippines is traditionally provided by the public sector. Utilities are regulated as vertically integrated monopolies controlling the three components of generation, transmission, and distribution. In the case of the Philippines, the NPC has a virtual monopoly on generation and transmission. The distribution function

is being handled by about 119 rural electric cooperatives, 15 private utilities, and a handful of public provincial utilities.

Tariffs often exhibit cross subsidies (between customer classes and regions) in view of political pressure to favor one class of consumers over another. In the Philippines, industrial, commercial, and high-consumption residential consumers have been subsidizing poor residential customers (those belonging to the lowest consumption bloc of 0–50 kilowatt-hour (kWh) monthly consumption category). The PPSRP seeks to phase out these cross subsidies in the tariff structure in line with the objective of configuring a more competitive power sector. Removal of cross subsidies could lead to higher electricity tariffs for poor residential customers and lower tariffs for industrial and commercial groups, as well as residential consumers with higher kWh monthly consumption. This will imply a higher level of expenditures by poor residential consumers for the same amount of electricity. The extent of the tariff increase to the poor is estimated as the difference between average actual monthly charges to the lowest group of power consumers and the estimated marginal costs of supply to this group. It has been argued in the program loan report that, in the long run, the full restructuring of the electric industry is expected to introduce efficiency gains that will have substantial effects on the macroeconomy. In particular, the reduction in electricity tariffs is expected to lower electricity prices to production units that would make industries more competitive.

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A more competitive environment is expected to put downward pressure on the tariff rates closer to the costs of producing the last kWh of electricity. This is in consonance with the economic efficiency principle of aligning the price of a good or service equal to the cost of producing an additional unit of it (its marginal cost). The estimation of the tariff levels that are likely to be achieved by the full restructuring requires estimating the long-run marginal costs (LRMCs) of supply (which include generation, transmission, and distribution). These estimates are then compared with the existing tariffs that are being paid by various consumer categories. The difference between the LRMC supply for a particular customer category and the average tariff they pay is the subsidy. A positive subsidy for a consumer grid/category means that it is being subsidized while a negative subsidy means that the particular grid/category is subsidizing other grids/categories.

In principle, estimates of the LRMC for each consumer grid/category are needed which would require computing the LRMCs of generation, transmission, and distribution. Under the technical assistance (TA) attached to the PPSRP, LRMCs were determined using a regional capacity and energy market forecasting system that simulates the fundamentals associated with competitive power markets. A computer program was utilized to advance market price forecasting forward from a typical cost-based simulation approach to an approach that is market-based or bid-based. A dual-commodity market was simulated using linear programming techniques (TA PHI-3127: Consumer Impact Assessment, Final Report, 18 May 2001, Navigant Consulting, Inc.).

In the other LRMC studies for the Philippines, proxies were used in estimating the LRMC in view of measurement difficulties. A separate computation of the LRMC for generation and transmission was done using an incremental approach wherein demand for electricity was advanced incrementally in units of kWh. Given each increment, a system was optimized to generate the additional 1 kilowatt of

TABLE A3.3: Elements of Power Subsidy Determination

	Generation/ Transmission Costs (P/kWh) (A)	Distribution Costs (P/kWh) (B)	Supply LRMC (P/kWh) (C=A+B)	Tariffs (P/kWh) (D)	Subsidy (P/kWh) (E=C-D)
Residential (0-50 kWh)					
Residential					
Commercial					
Industrial					

demand using the most efficient configuration of plants. The resulting incremental cost was an approximation of the marginal cost. Incremental capital costs were included by annualizing the present value of investments in generation and transmission capacity (implied by the optimal expansion), and distributing these over the increments in demand (Deloitte and Touche Consulting Group 1997).

Another study was conducted to estimate the LRMC for distribution. The average cost for distribution was used as a proxy for marginal cost of distribution, where:

**Average Cost =
Operating Expenses/kWh sold**

Data on operating expenditures (net of disallowed/unrelated expenses, depreciation, and purchased power costs) and kWh were taken from a sample of private electric utilities and rural electric cooperatives. These costs were adjusted to reflect the customer-related costs of service to residential, commercial, and industrial consumers based on the cost structure of the biggest private electric utility (i.e., Meralco). An economic cost of capital is imputed and added to this to obtain an estimate of total economic cost. Similarly, data on net operating assets were generated from the sample and the value was converted into an annuity with a period of 50 years to approximate the economic cost of capital for distribution (Lee 1998).

Warford (1997) argues that any form of marginal cost pricing has to be approximate and, ultimately, some averaging of costs over a range of output is always required. A suggested approach is to broaden the definition of marginal cost, and to set price equal to the average unit of incremental output. The average incremental cost (AIC) formula (see Box 8) may be adapted to encompass generation, transmission, and distribution components of power supply. It can be estimated by dividing the discounted value of future supply (investment costs) costs plus the incremental operation and maintenance (O&M) costs by the (similarly discounted) amount of additional kWh, representing consumption.

2. Technique Description and Application

Munasinghe and Warford (1982) adopted a long-run AIC method in estimating capacity, energy, and customer costs for the Philippines using data from NPC, three sample private utility firms, and six sample rural electrification cooperatives (RECs). These cost computations were based on the expansion programs of each sample utility, historical data on the utility's operating performance, and system characteristics. The method used, while it led to a more comprehensive analysis, entailed enormous data requirements.

a. Long-Run Marginal Cost of Bulk Supply from National Power Corporation

Capacity Costs. Incremental capacity cost consisted of investments in additional generation and high-voltage

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Box 8: Average Incremental Cost (AIC) Formula

$$AIC = \left[\Sigma_{t=1} (I_t + M_t - M_0)/(1+r)^t \right] \Big/ \left[\Sigma_{t=1} (Q_t - Q_0)/(1+r)^t \right]$$

where I_t is the investment cost in year t, $(M_t - M_0)$ is the operation and maintenance cost in year t due to incremental consumption of electricity in year t or $(Q_t - Q_0)$, r is the discount rate, and 0 is the base year.

Source: Warford (1997).

(HV) facilities, including related increases in O&M costs as a result of plant expansions. These yearly investment streams for generation and transmission plant projects were derived from NPC's 10-year power expansion program. The investment flows were discounted (using the social discount rate of 15%) to generate the present worth of the programmed capital outlays. The resultant present worth of investments was then annuitized over the estimated economic life of the plants in each grid. The present worth of the annual increase in generation and transmission O&M costs were, likewise, derived. Costs at the generation and HV transmission levels were then compared with the present value of the increases in capacity requirement during the planning period, to generate annual incremental capital and O&M costs estimates. These were then appropriately adjusted for power losses from transmission and were added to the annual incremental capacity cost at HV levels.

Energy Costs. These were derived from the fuel costs associated with the various types of plants scheduled for operation over the 10-year planning period. O&M expenses of generation and HV transmission plant, required for energy production and deliveries, were also added

as part of energy costs. The fuel costs were applied to the projected annual stream of plant generation to derive the annual fuel cost for each grid. Increases in fuel expense over the period were then discounted and compared with the increases in energy generation requirements to derive the incremental energy fuel cost at generation level. Increases in O&M expenses related to energy were, likewise, discounted. The sum of incremental energy costs at the generation level was adjusted for transmission losses.

Customer Costs. These are incremental expenses directly attributable to consumers which include costs of hookup, metering, and billing. Strictly speaking, some of NPC's administration and general (A&G) expenses were not directly related to customers. However, these expenses were considered since a considerable amount was associated with customer billing, accounting, collection, and other related services. The incremental A&G costs were estimated from the projected annual increases in A&G costs. Then, the present worth was derived and their corresponding annuity values over the projections of the number of customers were obtained. Since NPC is considered a bulk supply authority,

customer-related costs represent only a small portion of NPC's total costs.

b. Long-Run Marginal Cost of Retail Supply from Private Utilities

Capacity Costs. Incremental capacity-related costs for retail power supply include capital expenditures on transmission and distribution (T&D) facilities, plus attendant O&M expenses. A disaggregation of T&D costs into customer-related and capacity expenses was done since only a segment of T&D expenses was related to capacity. The cost allocation took into account the number and spread of customers. Hence, for HV and medium-voltage (MV) supplies involving relatively few customers, 100% of capital and O&M costs were classified as capacity-related. For low-voltage (LV) deliveries, 70–90% of investment and O&M costs were allocated to customer-related costs. Capacity-related capital investments were then matched with additional investments to be supplied as a result of expected increases in demand. These were subsequently discounted at 15%. Incremental capital costs were added to the incremental O&M costs to obtain the total incremental capacity at varying delivery voltages.

Energy Costs. Estimates of incremental energy-related costs of retail deliveries of private utilities consist of costs of energy purchased from NPC and expenses related to self-generated energy. A weighted average value of energy cost of these two was then computed for each utility.

Customer Costs. Annual incremental customer-related costs for distribution facilities (at the LV level) include incremental capacity costs, incremental O&M and A&G costs, and incremental meter costs.

c. Long-Run Marginal Cost of Retail Supply from Rural Electric Cooperatives

Capacity Costs. These were based on the projected investment requirements needed to develop primary and secondary distribution lines and associated facilities. The annual stream of these investments was compared with the forecast of additional load demand. Applying a 15% discount rate and assuming an average plant life of 25 years, the resulting incremental capacity cost per kilowatt was converted into its annual equivalent. Thirty percent of total incremental O&M, as well as A&G expenses were assumed to be capacity related.

Energy Costs. Energy-related costs were based on the costs of energy purchased from NPC's bulk power supply and adjusted for T&D losses down through the LV delivery level.

Customer Costs. Components of customer-related costs of power supplied by cooperatives included total costs of additional secondary lines, transmission facilities, service drops, and meters. Also included were substantial percentages of the O&M expenses; general administrative and consumer accounts expenses; and some provision for the cost of architectural and engineering services, street lighting, and general plant and

other contingencies. The stream of projected investments in distribution facilities was discounted to derive the annual equivalent. Other customer-related incremental expenses were then matched with the forecast of additional customers to be connected.

3. Existing Tariff Levels and Lifeline Rate

Following Lee (1998), average tariffs of the various categories can be taken from the tariff rate schedules of the RECs and the sample electric utilities. A weighted average can be estimated (by using the respective kWh sold) to obtain the average tariff rate per consumer category. In the case of the tariff rates paid by the poor, an average estimate can be derived from the tariff schedules (i.e., rates applying to the lowest kWh consumption) of the RECs and the private utilities. After deducting estimated taxes (in the case of utilities), an overall weighted average tariff rate for each customer category can then be computed by using the shares of private utilities and RECs' kWh sales to total kWh sales, respectively.

In the Philippine case, statistics indicate that the main uses of electricity by rural households are on recreation, lighting, and space cooling. Only a very minimal proportion (about 3%) of rural households use electricity for cooking and food preparation. Prior to the reform measures, total expenditure of households (with annual income below the poverty threshold) on electricity was estimated to be about 1.6–3.0%. Thus, the impact of subsidy removal was judged to be relatively small due to the small

percentage expenditure of the poor on electricity (Table A3.4). This can be attributed to the fact that demand for electricity is price inelastic (the quantity of electricity demanded increases and decreases by a smaller proportion than the changes in electricity prices). In estimating the impact of removal of subsidies, data on household expenditures by income and by region were obtained from the Family Income and Expenditures Survey. The share of household expenditures on electricity (which is included in the fuel, light, and water category) to total expenditures was then computed. Tariffs are assumed to rise by the amount of subsidy removed.

The total increase in monthly expenditure due to tariff increases ranges from a low of 2.5% in Luzon to a high of 3.6% in Bohol. In absolute terms, these are increases of between P55 and P86 monthly (Table A3.5). The tariff increases required to remove cross subsidies are deemed to have only a most modest impact on total expenditure of the poor. Hence, no particular mitigatory measures are mentioned in the program loan report apart from a phasing in of the increases. The poor are expected to benefit from lower electricity prices in the long run as a result of the competitive measures introduced by the restructuring program, but no attempt is made to quantify the extent to which long-run power tariffs might be lower due to efficiency gains. However, a similar program for Indonesia (Loan 1673-INO), while also estimating a small incremental expenditure for the poor (valued equivalent to less than 1% of annual rice consumption), mentions the intention to establish a Social Electricity

TABLE A3.4: Subsidies to Residential Consumers before Power Restructuring

Grid	Total Residential Sales (MWh)	Residential Sales to 0-50 kWh Consumers (MWh)	Long-Run Marginal Cost (P/kWh)	Subsidy (P/kWh)
Luzon	8,474,408	152,539	4.3	2.0
Bohol	37,566	676	8.3	5.2
Cebu-Negros-Panay	1,618,722	29,137	5.7	3.1
Mindanao	1,013,822	18,249	5.7	3.8
Leyte	91,811	1,653	6.4	3.4

Source: P. U. Lee. 1998. Report on Impact on Poverty of Philippine Power Sector Restructuring, University of Asia and the Pacific, May, Table 9.

Development Fund to continue to subsidize the most vulnerable. Presumably, this is in recognition of the basic point that even small increases in cost can have a substantial impact on the vulnerable households.

With the exception of the Meralco franchise area, legislated subsidies or lifeline rates are not offered to low-income captive market consumers who cannot afford to pay at full cost. However, under the Power Reform Sector Law, a lifeline rate is proposed to be set up to supply the basic electricity needs of marginalized end-users. Aside from equity grounds, a lifeline rate is deemed necessary in cases where the cost of electricity consumption is high vis-à-vis a particular income level. In practice, proper targeting of beneficiaries is essential in view of possible "leakages" in the system (i.e., benefits may be partly captured by a nontarget group). On the other hand, narrowly defining the beneficiaries, while it lowers the cost of intervention, may unduly result in undercoverage of the targeted poor.

TABLE A3.5: Impact of Subsidy Removal on Budget of Households Consuming 0–50 kWh

Grid	Electricity in Total Expenditure (%)	Subsidy to Electricity Tariff (%)	Increase in Household Expenditure of Total Removal (%)	Monthly Increase in Expenditure of Average Poor Family (P)	Number of Poor Households
Luzon	3.0	84.6	2.5	65.4	1,618,635
Bohol	2.1	172.0	3.6	85.7	—
Cebu-Negros-Panay	2.3	118.0	2.7	65.0	602,327
Mindanao	1.6	196.6	3.2	74.3	859,637
Leyte	2.4	113.7	2.7	55.5	233,512

— Data not available.
Source: P. U. Lee. 1998. Report on Impact on Poverty of Philippine Power Sector Restructuring, University of Asia and the Pacific, May, Table 11.

APPENDIX 3

C. CASE 3. Uzbekistan Education Sector Development Program: Integrating the Logical Framework, Policy Matrix, and Poverty Impact Assessment

1. Policy Issues Addressed

Enhancing the relevance and upgrading the quality of education are important factors in Uzbekistan's transition toward a market-driven economy. The educational system is beset by various concerns, including significantly lower participation rates in basic education than official statistics may suggest and lower literacy of much of the adult population brought about by the Government's decision to switch from the Cyrillic to the Latin script. The higher dropout rates after independence suggest rising direct and indirect costs of schooling, especially in rural areas, and poor levels of preparedness for primary education as a result of a sharp decline in preschool attendance. The phasing out of the Cyrillic alphabet in the coming years is also expected to affect the majority of teachers. These issues are exacerbated by gender disparities that become more prominent as one moves up in education levels. Girls' access to technical education remains restricted, especially in the field of science, which tends to confine employment of women to a relatively few sectors (e.g., education, health, food processing) and lessen their opportunities for career advancement. It is also expected that access to education for children from linguistic and ethnic minorities will become an issue in the future as a result of the recent government decision to reduce the number of languages of instruction from seven to three.

Structural problems concerning the quality, relevance, efficiency (both external and internal), and effectiveness of the current educational system need to be addressed to generate substantive outcomes. There is a need to revamp the contents, processes, and institutional set-up of the system to better serve the needs of changing socioeconomic and political conditions. Budgetary constraints hinder efforts to achieve qualitative improvements (e.g., teacher retraining, materials development). Suboptimal utilization of public resources (reflected in small class and school sizes) and low efficiency ratios and teaching loads characterize the present educational system, highlighting the need for reforming the contents and methods of education at all levels to make it more relevant to the needs of its clientele and to provide a solid foundation for further learning and entry into the job market.

A precondition for the success of the educational system, as a catalyst in the transition process, hinges on the implementation of cost-effective and sustainable reforms. The Education Sector Development Program (ESDP) is envisaged to meet the twin objectives of carrying out sector-wide policy measures and implementing suitable investment activities to enhance the quality of basic education and improve management practices in the sector. Broadly, ESDP is designed to address the following areas: (i) modernization of the structure, contents, and processes of education; (ii) sustainability and efficiency improvements in the sector; (iii) sector governance reforms; and (iv) provision of protection for the poor. Crucial interventions will take the form

of the following: (i) institutional changes required to improve system equity and efficiency; (ii) support to a cost-effective and pro-poor restructuring of education budgets; (iii) assistance for deploying the educational personnel in a more efficient way and for enhancing staff performance; (iv) participatory research studies in critical policy reform areas; (v) establishment of a distance education (DE) capacity to retrain teachers in a cost-effective way; (vi) development of teacher education courses on teaching methods and selected subject contents; (vii) provision of educational equipment to teacher training institutions; (viii) skills development programs for school principals and local-level administrators; (ix) improvement of the physical conditions and resource base of schools; (x) assistance to communities in establishing school boards; and (xi) provision of grant funds accessible to schools on a competitive basis.

2. Adjustment Cost and Mitigation Measures

Reforms required to improve the efficiency of the system will entail short-term losses (e.g., staff retrenchment and redeployment, increased teacher workload, reduced budget allocations for stipends and scholarships, closing of schools, abolition of the system of free textbook provision) for certain stakeholders and thus, may face resistance within the system. These will entail adjustment costs and compensatory measures. In particular, mitigation measures will have to be instituted to address the issues of planned downsizing of administrative personnel and rationalizing the existing school

networks. Personnel reduction will be achieved through natural attrition (retirement) and voluntary resignation of teachers unwilling to continue holding two jobs (as was frequently the case previously). Outplacement and retraining services will be provided to staff to be retrenched and reassigned to new positions.

Specific measures (e.g., free textbook provision will be continued for certain categories of pupils) will also be introduced as social protection scheme for the poor who may be affected by the proposed introduction of user charges in the educational system. Teacher salaries and benefits will be protected. Particular attention will be given to maintaining access of rural students to basic education who will be affected by mergers and closures of schools. Schemes involving direct student assistance will be better targeted toward needy higher education students by integrating social criteria in the granting of scholarships and stipends. School-based project interventions (e.g., poor school rehabilitation program and the School Initiatives Fund) will be targeted toward schools located in poor and remote areas where the capacity of the community to support education is relatively low.

3. Budgetary Impact of the Program

The share of education in total recurrent central government expenditures remained constantly above 22% since 1995. Almost 90% of total education expenditure comes from the central budget, either directly (for financing higher education institutions and academic lyceums), or through

APPENDIX 3

transfers to regional governments (for primary and secondary schools and professional colleges). The remaining 10% is financed through tax revenues generated by local governments. Funding for noncompulsory levels of education (i.e., preschool and higher education) relies in part on extra-budgetary sources (e.g., namely payments made directly to institutions by students, families, companies, etc.). Extra-budgetary revenues account for about one third of total expenditures by higher education institutions, and are primarily comprised of university fees paid by employers for "contract students" (as distinguished from "budget students" who receive scholarships and in some instances stipends).

A simple simulation was undertaken to assess the impact of ESDP on the recurrent education budget during the implementation of the Program. Policy measures are expected to generate cost savings amounting to $208.7 million which are much higher compared with the estimated budgetary cost of about $54.5 million. In annual terms, a net savings of about $38.5 million per year will be realized as compared with the year 2000 recurrent education budget of about $410 million. Table A3.6 sets out the details of each policy measure.

4. Linking the Program Framework to Policy Measures, Poverty Impact Assessment, and Adjustment Costs

A feature of the Uzbekistan Education Sector Development Program loan report is the clear and explicit linkage between the Program's logical framework, the policy measures and conditions, the poverty impact assessment, including mitigation and enhancement measures, and the budget impact and adjustment costs identified. Table A3.7 exemplifies selected linkages from the ESDP's frameworks.

TABLE A3.6: Financial Impact of Policy Measures
($ million)

Policy Measure	Costs	Cost Savings
Implementation of an administrative staff redeployment plan	5.0	13.6
Rationalization of the school network	5.4	61.7
Increase in the teaching load	2.7	0.0
Review of boarding facilities for SSE	0.0	92.6
Introduction of cost recovery for boarding services (pilot basis)	0.0	1.5
Improvement of teachers' service conditions	17.2	0.0
Transfer of supplementary resources to poor regions	21.5	0.0
Introduction of SSE student allowances for the poor (pilot basis)	2.6	0.0
Targeting of scholarships and stipends in higher education	0.0	39.2
Total	**54.4**	**208.7**

SSE = senior secondary education.

TABLE A3.7: Example of Linkages between Logical Framework, Policy Matrix, and Poverty Impact Assessment

1. Logical Framework

Design Summary	Performance Targets	Monitoring Mechanism	Assumptions and Risks
Goal: • To establish a general education system responsive to the needs of a modern market-oriented economy and democratic society	• Universal access to basic education maintained • Efficiency and effectiveness of basic education improved (main indicators brought up to international standards) • Curriculum development capacity strengthened • Educational outcomes improved • Improved educational policies and institutional reforms implemented within time frames provided in the policy matrix	• National legislation and policies on education • Educational budgets and statistics • Reports of the education reform implementation monitoring unit (ERIMU) and monitoring units of the various agencies • Education Sector Development Program (ESDP) policy matrix and efficiency indicators	• Government commitment and political will to reform education • Sustained budget allocations to education consistent with the reform agenda • Technical and managerial capacity to design and manage the reform • Coordination among ministries and institutions; individual incentives aligned with overall priorities
Objectives: • To improve the quality and efficiency of the general education system	• Education structure stream-lined (Policy Matrix [PM] 1.1) • Curriculum standards reviewed and textbooks improved (PM 1.2) • Teachers trained in modern curriculum (PM 1.3) • Education planning, management, and super-vision improved (PM 3.1, 3.2) • Staff redeployed and service conditions revised (PM 2.1, 2.2) • School facilities rationalized and upgraded (PM 2.3) • Remote rural schools rehabilitation and access to financial resources improved (PM 4.1) • Nongovernment education introduced (PM 3.3)	• Educational budgets and statistics • New sector reform decrees • Reports of the ERIMU and monitoring units of the various agencies • Midterm and final project reviews and evaluations • Reports of the SIF regional facilitators and national coordinator • ESDP policy matrix and efficiency indicators	• Government commitment to efficiency improvement • Consensus on new staffing, workload, salary norms • Counterpart fund availability • Distance Education (DE) system established • Access to reliable data and statistics
Outputs: • Strengthening sector planning and management capacity • Improving and extending teacher education • Strengthening community	• New school map adopted, organizational audit implemented, principals and district managers trained • Policy studies in staff service conditions and redeployment, private education, decentralization and budget allocation	• Government / Ministry of Public Education (MOPE) decrees or resolutions on service conditions • Studies • Midterm review / evaluation	• Authorities collaborate, access to data provided, new functions agreed to • Consensus on HRD issues, government/NG cooperate • Qualified staff

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Table A3.7 (cont'd.)

Design Summary	Performance Targets	Monitoring Mechanism	Assumptions and Risks
involvement with schools and improving learning conditions	• DE staff trained in program development, DE centers improved, teacher trained • School/community leaders trained in self-management, school boards established, poorest schools rehabilitated, SIF introduced in poor areas	• Reports and databases on school map and audit • Administrative staff redeployment plan • Reports on study visits and short-term courses abroad • Teachers training and DE modules • Decree on the accreditation of DE programs • Project monitoring system/database	identified and released for training • Budget available for DE units and civil works • DE accredited and accepted • Module writers have incentives • Local authorities support legislation • Effective targeting of poor communities and schools • SIF facilitators and school authorities collaborate

2. Policy Matrix

Policy Areas and Measure	Actions Tranche 1	Actions Tranche 2/3	End of Program Targets
PM 1: Modernize Structure, Contents and Processes of Education			
1.1 Streamlining of education structure 1.2 Curriculum review and textbook development 1.3 Teacher education 1.4 Monitoring of education quality	• Submit projections for 2001–2005 of (i) student flows from primary to higher education and (ii) capital and recurrent education expenses broken down by subsector and region	• Submit updated plans for SSE expansion • Formulate strategic directions for restructuring higher education • Maintain recurrent budget allocation to education for fiscal years 2003 and 2004 • Complete preparation of a master plan for higher education • Submit tracer study of SSE graduates	• Education structure streamlined • Curriculum standards reviewed and textbooks development improved • Teachers training improved • Education quality monitored
PM 2: Improve Sector Sustainability and Efficiency			
2.1 Staff redeployment 2.2 Service conditions of education personnel 2.3 Rationalization of facilities	• Prepare teacher number projections for 2001–2005 • Policy studies on staff service terms of reference conditions and staff redeployment • School and community survey terms of reference	• Organizational audit and redeployment plan • Identify adjustment mitigation measures (retraining, etc.) • Introduce new location and performance reward systems • Prepare new school map	• Staff redeployed • Teacher load increased to 20 hrs/week • New school map implemented and school network rationalized

Table A3.7 (cont'd.)

Policy Areas and Measure	Actions Tranche 1	Actions Tranche 2/3	End of Program Targets
PM 3: Reform Governance of Education			
3.1 Policy formulation, planning and financial management 3.2 School management and community participation 3.3 Nongovernment education	• Establish Education Reform Unit • Policy studies for budget allocation, decentralization • Legal basis for SIF	• Program budgeting test • Report on school boards and mobilization of extra-budget funds • Determine modalities for SSE user fees	• Assess and consider expansion of program budgeting • Evaluation of SIF • Pilot project for school user charges initiated
PM 4: Protect Poor and Vulnerable Population Groups			
3.4 Targeting of poor regions/districts for supplementary budget allocations 3.5 Assistance schemes for the poor	• Education finance working group established • Rehabilitation plan prepared for 500 schools in poor areas • Mechanisms identified for additional resource transfer to areas below national average • Textbook and budget needs assessment • Student loans decree	• Pilot test for poor SSE student allowance • Define criteria for stipends/scholarships • Reduce proportion of budget students to 25%	• Rehabilitate 200 poor schools and provide supplementary budget for poorest districts • Proportion of budget students reduced to 20%

3. Poverty Impact Assessment

PM 2. Improve Sector Sustainability and Efficiency

Channel of Effect	Direct Effect Short Run on the Poor	Indirect Effect Short Run on the Poor	Indirect Effect Medium Run on the Poor	Other Stakeholders Affected	Enhancement and Mitigation Measures
Labor Market	Direct short-run effect during the program period on labor market and real wages for the poor unlikely.	Indirect short-run effect during the program period on labor market and real wages for the poor unlikely.	School graduates better educated and skilled on entry to the labor market with potential to command higher real wages (depending on prevailing labor market circumstances).	Teachers assigned to remote and economically disadvantaged areas. Students in same areas. Negatively affected: redundant teachers and their dependents.	Distance education for teachers provided to remote areas ($4.0 million). Compensation packages for redundant staff.
Prices	PM 2.2 Cost of teachers increases (21,000 to 25,000 teachers in disadvantaged areas receive		Better qualified teachers and improved local management of schools reduces overall school	Teachers assigned to remote and economically disadvantaged areas. Negatively	Supplementary incentive for teachers serving in disadvantaged areas ($3.9 million).

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Table A3.7 (cont'd.)

Channel of Effect	Direct Effect Short Run on the Poor	Indirect Effect Short Run on the Poor	Indirect Effect Medium Run on the Poor	Other Stakeholders Affected	Enhancement and Mitigation Measures
	special incentives). PM 2.3 Increased service cost to students no longer eligible for government boarding subsidies.		management cost.	affected: students and families no longer eligible for government subsidy (assumed nonpoor).	
Access to Public Services	PM 2.1 Administrative staff and teachers have access to professional development		Students in remote and poor areas have access to improved school facilities and quality of teaching.	Teachers assigned to remote and economically disadvantaged areas. Students in same areas.	Distance Education Program for teachers.
Transfers	PM 2.2 Transfers of supplementary resources to teachers in economically disadvantaged areas.		Intention to redirect budget savings to the poor.		
Analytical Basis and/or Assumptions	PM 2.2 Teacher motivation and productivity is enhanced by supplementary payments.				

PMs 3 and 4: Reform Governance of Education and Protect Poor and Vulnerable Population Groups

Channel of Effect	Direct Effect Short Run on the Poor	Indirect Effect Short Run on the Poor	Indirect Effect Medium Run on the Poor	Other Stakeholders Affected	Enhancement and Mitigation Measures
Labor Market	Direct short-run effect during the program period on labor market and real wages for the poor unlikely.	Indirect short-run effect during the program period on labor market and real wages for thepoor unlikely.	School graduates better qualified on entry to the labor market with potential to command higher real wages.	Communities and students in economically disadvantaged areas.	
Prices	PM 3.1, 3.2 School management costs reduced through improved planning, self-			Higher priced education for nonpoor.	Establishment of SIF ($3.5 million).

Table A3.7 (cont'd.)

Channel of Effect	Direct Effect Short Run on the Poor	Indirect Effect Short Run on the Poor	Indirect Effect Medium Run on the Poor	Other Stakeholders Affected	Enhancement and Mitigation Measures
	management, privatization of support services, income generation and introduction of user charges. PM 3.2, 3.3 Incremental financial cost to communities.				
Access	PM 4.1 Supplementary budget allocations provided to poor areas, resulting in improved learning environment in schools through rehabilitation of school premises. PM 3.3 Private/ nongovernment education introduced, freeing government resources for those unable to afford fees.		Improved participation rates and lower absenteeism rates in schools. Higher achievement of students in beneficiary schools. Improved health status of students.	Communities and students in economically disadvantaged areas.	Poor schools upgrading program for 1,000 schools ($22 million).
Transfers	PM 4.1 Increased budget/ block grants provided to schools in economically disadvantaged areas. PM 4.2 Direct support to poorest pupils through SIF program, but reduced government support to nonpoor.			Communities and students in economically disadvantaged areas. Negatively affected: students and communities no longer eligible for government allowances.	Establishment of SIF ($3.5 million).

Economic Analysis of Policy-Based Operations: Key Dimensions

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Table A3.7 (cont'd.)
Policy Budget Impact, Costs and Benefits

Policy Area and Measure	Indicators	Budget and Adjustment Costs $'000	Budget and Economic Benefits $'000	Non-monetized Benefits
PM 2.1 Staff redeployment				
• Compensation package for redundant staff				
• Retraining costs		1,113		
• Reallocation costs of transferred staff		3,761		
• Auditing and training needs assessment		157		
• Payroll reduction as a result of staff costs			13,619	
PM 2.2 Revision of service conditions				
• New promotion mechanisms		6,565		
• Incentives for teachers assigned to poor areas		3,979		
• Incentives for multigrade teachers		2,064		
• Salary increases for teachers with DE certificates		4,615		
• Increase in teacher workload/ salary bill augmentation		2,723		
PM 2.3 Facility rationalization				
• Rationalization of the school network				
• Compensation package for redundant teachers		3,955		
• Retraining costs for multigrade teachers				
• School mapping and community survey		1,423		
• Payroll reduction			57,549	
• Reduction in school operating expenditure			4,166	
• Reduction in boarding costs in SSE institutions			92,663	
PM 4.1, 4.2 Targeting of disadvantaged areas				
• Transfer of supplementary resources to disadvantaged regions		21,457		
• Introduction of SEE student allowances for the poor (pilot)		2,619		
• Targeting of scholarships and stipends in higher education		39,191		
TOTAL		**54,435**	**208,686**	

HRD = human resource development, NG = Non-government, PM = policy matrix, SIF = school initiatives fund, SSE = senior secondary education

D. CASE 4. Philippine Grains Sector Development Program: Partial Equilibrium Rice Model

1. Policy Issues Addressed

The program loan report for the Grains Sector Development Program (GSDP) (Loan 1739-PHI) indicates that in the Philippines, agriculture directly contributes about 22% of GDP and agri-based industries another 13%. Agriculture also contributes about one-third of the value-added in the services sector, and provides income to about 43% of the Philippine labor force. Rice and corn alone contributed nearly 28% of agricultural value-added in 1995 with rice contributing two-thirds of that figure. Despite an increase in paddy production, and the introduction of improved technologies, net returns to rice farming have steadily declined in recent years, with an inability of farmers to improve individual productivity and financial viability. Farmers have also been unable to move into higher-value crops. Overall, the constraints to improving grains productivity can be related to physical factors; farm-level constraints, including technical inefficiencies; and allocative inefficiencies, due to high transaction costs. In turn, these are related to an inappropriate policy regime, including price distortions; structural bottlenecks, such as lack of infrastructure and other public goods and services; and limited institutional capacity. The National Food Authority (NFA) is the agency tasked with price policy implementation.

NFA is a government-owned and controlled corporation that is mandated to stabilize rice prices in the Philippines. Since its inception, it has attempted to strike a balance between the conflicting requirements of three principal groups in the grains subsector—farmers, traders, and consumers. NFA's policies are aimed at responding to several, albeit conflicting, policy objectives, which include the following: (i) stable year-round rice prices, (ii) affordable rice prices, particularly for the country's poor, (iii) stable paddy prices at levels that enable rice farmers to attain reasonable levels of income, and (iv) sustained development of an integrated grains industry. In fulfilling these objectives, NFA has become directly involved in the domestic procurement of rice, buffer stocking, and importation.

The program loan report for the Philippines GSDP argues that the policy inconsistencies, stemming from NFA's exercise of both regulatory and marketing/trading functions, have led to significant financial losses, a high degree of retail price instability, and lower farm-gate prices. NFA has attempted to protect both consumers and producers through its strategy of "buying high and selling low", which has resulted in financial losses over the years. The floor price (i.e., the official price used by NFA to procure at the farm-gate level) is set relatively high while the ceiling price (or NFA's official price for distributing its rice supply to rice consumption centers) is set relatively low. Consumers pay prices that are 35–100% higher than would be possible under a free trade regime. This is attributed to the import ban and the fact that NFA imports and releases fail to make up for what would be achieved by private traders. NFA

TABLE A3.8: NFA Rice Distribution and Procurement, 1995–1998
(thousand metric tons)

	1995	1996	1997	1998	Average
Distribution					
Quantity ('000 MT)	256.7	731.4	622.8	1,628.2	809.8
% of Consumption	3.6	9.3	7.9	22.2	10.7
Procurement					
Quantity (MT)	8.2	124.3	100.5	97.4	82.6
% of Production	0.1	1.1	1.0	1.1	0.8

Source: Roumasset 2000.

determines the volume of rice imports while, at the same time, serving as the sole importer of the commodity. Moreover, this "protection" against rice imports does not confer commensurate benefits on the producers (Roumasset 2000).[6] Roumasset attributed the discrepancy between official and equilibrium prices to the fact that NFA is a relatively small player in the total domestic rice market. NFA's releases averaged around 11% of rice consumption from 1995 to 1998. Related data on NFA procurement showed an average of less than 1% of domestic rice production during the same period (Table A3.8).

2. Options for NFA's Reorganization

Two opposing schools of thought have emerged from the debate among the stakeholders on the direction, extent, and magnitude of NFA's reorganization within the context of the country's food security program and current trends in globalization. The "status quo" school contends that NFA plays a critical role in achieving food security and that the

proposed decoupling of NFA's regulatory function from its trading/marketing functions will result in welfare losses on both consumers and producers. While some operational reforms may be undertaken, NFA's basic functions and structure are proposed to be retained, especially its role in the domestic rice market. The opposing school of thought argues for decoupling to reduce the present level of inefficiencies in the rice market, based on the premise that the private sector can do a more efficient job in the area of rice trading. Thus, the Government may, instead, opt to focus its efforts on providing the right incentives to the private sector and on appropriately targeting food subsidies to the poor.

There are two versions of the "status quo" option in reorganizing NFA. Option A basically calls for a retention of the present NFA structure, including its expansion of coverage to other nongrain food commodities (e.g., sugar, corn, and fertilizer). Its variant, Option B, seeks to retain both the regulatory and trading/marketing functions of NFA. However, coverage will only focus on the rice commodity, since it is argued that markets for the

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[6] This section of the report draws heavily from Roumasset (2000) and AGILE (2000).

other nongrain food items have already been liberalized.

The GSDP (or Option C) proposed, among other measures, liberalized, more cost-effective grains pricing and import policies, and a decoupling of NFA's regulatory function from its trading/marketing functions and institutionalize a transparent process for food security policy implementation. Less government intervention is expected to spur greater competition, which would, in turn, lower prices in the rice market to the benefit of both producers and consumers. Moreover, government savings can be channeled to other basic support services and greater provision of infrastructure in rural areas.

Option D was an offshoot of the review undertaken and an extension of the schemes under Option C. It proposed the following policy reforms: (i) implementation of a rice price stabilization scheme without buffer stocks; (ii) creation of a National Rice Board (NRB); (iii) transfer of NFA's duplicative functions to appropriate government units; (iv) full privatization of NFA's proprietary functions, including the unrestricted sale of its bundled assets to the private sector; and (v) adoption and implementation of complementary grains and policy institutional reforms. These measures are expected to ease the pressure on the government's budget and to contribute toward societal gains and welfare.

3. Agency Cost Approach

Roumasset (2000) attempted an agency cost approach to quantify NFA's current intervention mechanisms. In economics, agency costs pertain to the costs of structuring, monitoring, and complying/enforcing a set of contracts with conflicting interests, including the inefficiencies or losses that remain when the contracts are optimally, but not fully, enforced (Jensen and Meckling 1976). The central proposition of agency theory is that rational, self-interested people always have incentives to reduce or control conflicts of interest so as to minimize the transaction costs that these conflicts engender. This implies that gains from minimizing conflicts and inefficiencies can be shared by the stakeholders/parties involved. It is posited that institutional structures, contracts, and informal arrangements can be created to reduce conflicts, govern relations, and increase the extent of cooperation and the benefits from it (Jansen 1994). For example, firms are a form of internalization of a certain category of market transaction costs, for which vertical integration incurs fewer transaction costs.

Alternative government intervention systems can be viewed as a set of contracts between the government (acting as the principal) and its agents (represented by managers, employees, contractors, and other stakeholders employed) to achieve certain objectives. In this case, agency cost covers structuring, monitoring, and compliance/enforcement (or "bonding") costs associated with establishing and operating each government intervention system, plus the inefficiencies that still remain despite the intervention scheme employed. It then follows that minimizing agency cost is equivalent to maximizing net public gains and hence,

can be considered as a decision rule in designing an optimum food policy program. The greater the number of contracts that have to be enforced between the government and its agents, the higher the structuring, monitoring, and compliance/enforcement costs (which can be collectively termed "organization costs") that may be incurred to ensure that pertinent objectives can be achieved by a given intervention system. An increase in organization costs will cause a subsequent decrease in social costs in the form of reduced welfare inefficiencies and distortions in the rice market. Therefore, agency cost can be defined as the sum of these organization costs and residual social costs/losses (e.g., producer and consumer welfare losses and opportunity costs such as foregone fiscal revenues) for each type of intervention system (AGILE 2000).

In the context of the Philippine rice market, agency costs emanate from the need for information, monitoring, compliance/enforcement, and other attendant organizational activities that are being undertaken to ensure adequacy in the supply of rice. Each alternative government intervention system connotes varying, and often redundant, organization costs. Thus, an increase in organization costs will bring about a concomitant increase in social benefits in the form of improved welfare among rice consumers and rice farmers. However, the implication of this analysis is that it may not be optimal to completely eliminate the inefficiencies in the rice market since it will entail inordinate organization costs. These will only cause fiscal balances to deteriorate and result in diminishing marginal benefits (i.e., reduced residual costs/losses). Therefore, on efficiency grounds, the most effective system of government is the intervention that minimizes agency cost (point S* in Figure A3.1) (AGILE 2000). The following subsections summarize how AGILE analyzed and deducted this conclusion.

FIGURE A3.1: Food Security Program Agency Cost Minimization
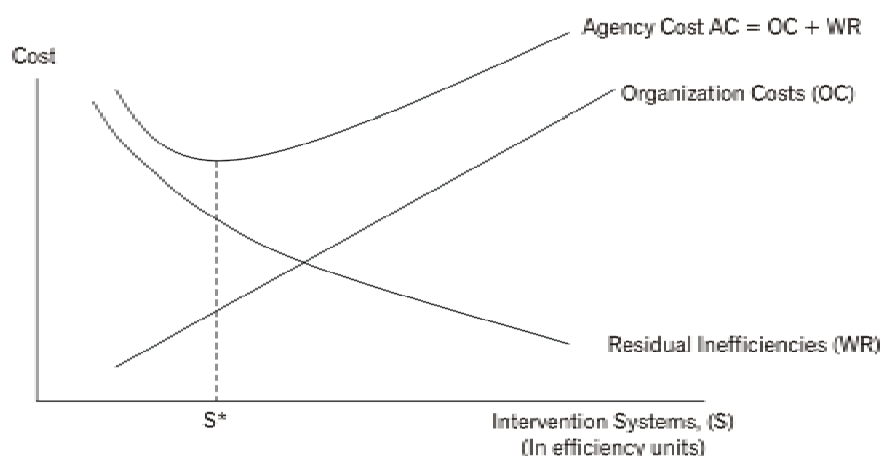
Source: AGILE Consultnats, 2000. *Strategic Reorganization of the NFA for the New Millenium.*

a. Agency Cost Estimation without the Decoupling of NFA's Functions (Status Quo)

A prerequisite in the design of a food security program in the Philippines is the estimation of a cost-effective modality on NFA's reorganization. Broadly, this will involve the following steps as indicated in the AGILE study: (i) estimation of the organization cost or the fiscal burden of alternative options; (ii) estimation of the inefficiency indicators (i.e., residual inefficiencies) resulting from each NFA reorganization scheme; (iii) derivation of the agency costs by summing up (i) and (ii); and (iv) selection of the option that generates the leas-combined costs (i.e., the option with the lowest agency cost). As an illustration, in 1996–1998, the AGILE consultants estimated the agency costs of maintaining the status quo in NFA. Estimates for 1997 are indicated below. The same methodology can be adopted to estimate the agency costs for the other years.

b. Estimation of Organization Cost

A good indicator of organization cost is the fiscal burden (including its impact on the credit sector) of operating a delivery system that will meet food security objectives. Table A3.9 sets forth an estimate of the fiscal outlays incurred by the Government for the year 1997.

c. Estimation of Rice Price Regulation Inefficiency Indicators

The residual welfare inefficiencies of each NFA reorganization option can be measured by foregone tariff revenues, producer and consumer losses, and other welfare losses (resulting from reduced quantities purchased by consumers or overproduction by farmers, due to price or quantity restrictions imposed on the rice market by the government intervention system). Roumasset estimated the following components of rice market inefficiencies (both demand and supply curves are estimated as straight lines for simplicity; see Figure A3.2 and Box 9):

In 1997, rice production was estimated at 7.3 billion kilograms (kg), at a producer price of P14.48/kg (including the conversion of *palay* (unhusked rice) to rice and marketing costs up to the wholesale in situ (warehouse point). Rice consumption was calculated at 7.9 billion kg, at a consumer price of P15.31/kg, or about 55% above the estimated border

TABLE A3.9: Estimated Financial Burden of NFA Operations in 1997
(billion pesos)

Item	Financial Burden
Operational Subsidy (Budget)	1.5
Equity Infusion	0.1
Increase in Debt	3.9
Less: Increase in Value of Rice Stocks	1.5
Total Financial Cost	3.9

Source: AGILE Consultants. 2000. *Strategic Reorganization of the NFA for the New Millennium.*

FIGURE A3.2: Economic Cost of Rice Regulation, 1997
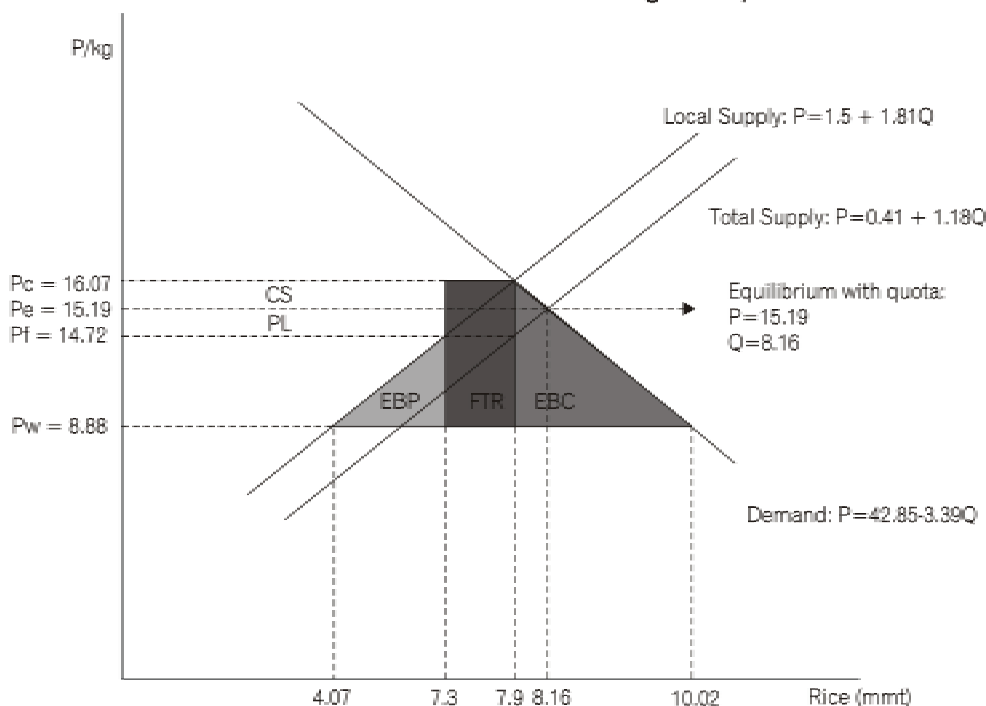
Source: AGILE Consultants. 2000. *Strategic Reorganization of the NFA for the New Millennium*.

price of P9.90/kg. Rice imports of around 0.6 billion kg would have been required to bridge the gap between local levels of production and consumption. This infusion of additional supply through imports would have resulted in a domestic price of about P14.10/kg, which is equivalent to the equilibrium price of rice without NFA intervention. On paper, rice producers (including those in the trading/marketing segment) and consumers should have been facing this new equilibrium price of rice (i.e., P14.10/kg). However, actual conditions in the rice market indicated that consumers were paying more (approximately P15.31/kg) and producers were receiving less (about P13.48/kg). The difference between consumer and full-producer rice prices was attributed to inefficiencies and non-competitive elements in rice marketing as a result of NFA policies and interventions.

Alternatively, a combination of a tariff, limiting rice imports to the supply gap (i.e., 0.6 billion kg), and taxes on both producers and consumers to lower consumer and producer prices, could have achieved the same equilibrium price (i.e., P14.10/kg) without the need for NFA intervention.

d. Estimation of Agency Cost

Roumasset estimated NFA's agency cost to be about P29.1 billion in 1997. Table A3.10 sets out the fiscal burden (i.e.,

Box 9: Residual Welfare Inefficiencies

Foregone Tariff Revenues: FTR = (the price of the permit to import a unit of rice or the difference between the wholesale price/kilogram and the border price of rice/kilogram) x (volume of imported rice or difference between local consumption and production levels), or the difference between the actual price of rice resulting from NFA intervention and the border price of rice. The Government would have received this difference in the form of tariff revenues if rice import permits will be auctioned off to the private sector. Therefore:

FTR = P(15.31–9.90)/kg x (7.9–7.3) billion kg = P3.4 billion

Consumer Surcharges: CS = (difference between the actual price of rice resulting from NFA intervention and what could have been the equilibrium price of rice without NFA intervention) x (volume of local rice production), or the penalties borne by rice consumers as a result of the inefficient rice marketing system arising from the absence of a transparent and credible rice price policy. Hence:

CS = P(15.31–14.1)/kg x (7.3) billion kg = P8.9 billion

Producer Losses: PL = (difference between the equilibrium market price of rice and the actual farm-gate prices received by producers as a result of NFA intervention) x (volume of local rice production), or the losses incurred by rice producers as a result of an inefficient rice marketing system. Thus,

PL = P(14.10–13.48)/kg x (7.3) billion kg = P4.5 billion

Excess Burden for Consumers: EBC = (one-half of the price difference between the border and domestic market rice prices) x (difference between the quantity of rice that would have been consumed at the border price and actual consumption level), or the welfare losses arising from consumers buying lesser rice than they would have without the import restrictions on rice.

EBC =(1/2) x P(15.31–9.90)/kg x (9.58–7.9) billion kg = P4.5 billion

Excess Burden for Producers: EBP = (one half of the price difference between the border and domestic market rice prices) x (difference between the quantity of rice produced if producers did not receive any trade protection and actual production level), or the welfare losses imposed on the society from the rice producers' expansion of their production to more than the amount they would have produced if there were no import restrictions on rice.

EBP =(1/2) x P(13.48–9.90)/kg x (7.3–5.12) billion kg = P3.9 billion

organization cost) and the various components of welfare losses (i.e., residual inefficiencies). Agency costs of NFA intervention were estimated to be P30.7 billion and P18.2 billion, in 1996 and 1998, respectively.

Option A, which calls for an expansion in NFA's current commodity coverage, is deemed not to be cost effective since it will create more inefficiencies and diseconomies. While no formal estimates were presented, NFA's expanded intervention will entail proportionate increases in fiscal outlays and operational and welfare losses due to trade restrictions and price controls in the other commodities that are proposed to be covered. On the other hand, the status quo (Option B), which will limit NFA's intervention to the rice market only will, on the average, incur agency costs of about P26 billion (Table A3.10).

TABLE A3.10: Estimated Agency Costs of NFA's Intervention System, 1996–1998
(billion pesos)

Item	1996	1997	1998	Average
A. Total Residual Inefficiencies	31.2	25.1	12.0	22.8
Foregone Tariff Revenues	4.3	3.3	3.6	3.7
Consumer Surcharges	6.4	8.9	4.7	6.7
Producer Losses	3.4	4.5	3.1	3.7
Excess Burden for Consumer	7.6	4.5	0.6	4.2
Excess Burden for Producer	9.4	3.9	0.1	4.5
B. Total Fiscal Burden	(0.5)	3.9	6.2	3.2
Total Agency Cost (A+B)	30.7	29.0	18.2	26.0

Source: AGILE Consultants. 2000. *Strategic Reorganization of the NFA for the New Millennium.*

e. Agency Cost Estimations by Decoupling

Options C and D can be justified if it can be shown that the decoupling of NFA's regulatory and marketing functions can lead to a lower agency cost (Figure A3.3). Operationalizing these options will involve the full privatization of NFA's marketing functions and a refocusing of government efforts on regulatory activities. On the fiscal side, these are expected to result in reducing government subsidies, equity infusions, and credit guarantees. Private sector resource mobilization is also expected to be enhanced in the rice marketing activities.

f. Estimation of Organization Cost

The setting up of National Rice Board (NRB) under Option D will require a much lower financial outlay of about

FIGURE A3.3: Economic Cost of Rice Regulation, 1997
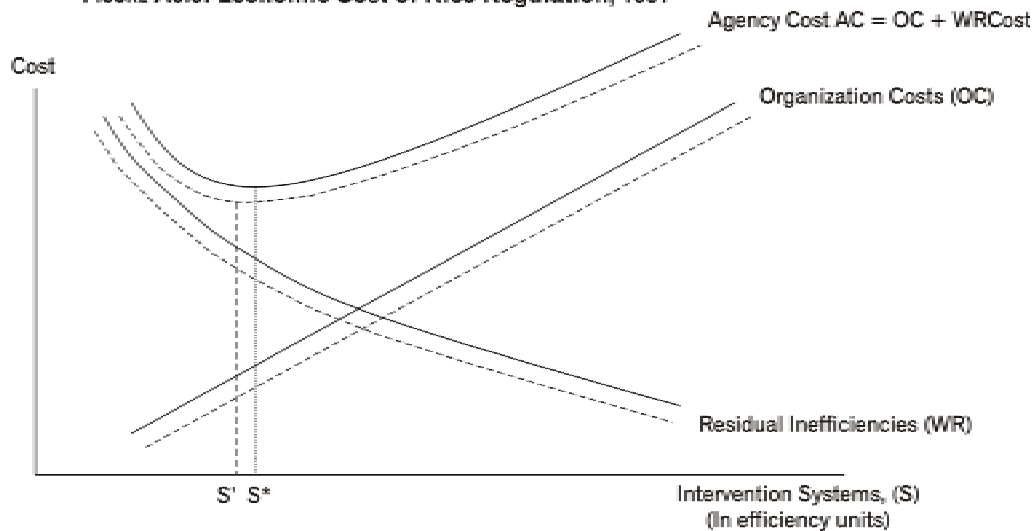
P116 million, as compared with NFA's budgetary outlays of P3.9 billion and P6.2 billion, in 1997 and 1998 respectively (Table A3.10). However, there is no currently available estimate of the contingency fund that will have to be added to the budget of the proposed NRB. Under Options C and D, budgetary resources will be required for the envisaged targeted food assistance scheme. Estimates range from P1.5 billion to P2.0 billion to support this program and are derived by taking the difference between the NFA-release price and the wholesale price and multiplying this with NFA's distribution volume from 1995 to 1998. AGILE's estimate of fiscal burden was about P1.7 billion for Option D.

g. Estimation of Rice Price Inefficiency Indicators

A more transparent rice policy regime is expected to remove the wedges between the prices that the consumers pay and the prices that producers receive. Residual inefficiencies, in the form of consumer and producer losses, are still expected to exist in view of the imposition of an import tariff on rice that will continue to create a gap between the world price and the domestic price. However, a more competitive rice market is expected to ensue as tariff protection decreases over time, thus minimizing residual inefficiencies. Estimated residual inefficiencies under Option D are shown in Table A3.11.

h. Estimation of Agency Cost

Using 1997 as an example, it can be shown that the estimated agency cost with the decoupling of NFA's functions is much lower (about P9.4 billion) than the agency cost of around P29 billion incurred under the present NFA system of operation (Tables A3.11 and A3.12).

However, a political economy challenge is to find which components of the proposed decoupling modalities are resisted by whom and to what degree some groups will be negatively affected. Compensatory and safety-net programs must be designed for those who will suffer short-term economic dislocations (AGILE 2000, p. 61).

i. Partial Equilibrium Analysis

The economic impact of the proposed policy reforms (para. 93 of the GSDP

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TABLE A3.11: Estimated Residual Inefficiencies Under Option D, 1996–1998
(billion pesos)

Item	1996	1997	1998	Average
Total Residual Inefficiencies	7.6	7.7	1.1	5.4
Foregone Tariff Revenues	0	0	0	0
Consumer Surcharges	0	0	0	0
Producer Losses	0	0	0	0
Excess Burden for Consumer	2.8	2.9	0.4	2.0
Excess Burden for Producer	4.8	4.8	0.7	3.4

Source: AGILE Consultants. 2000. *Strategic Reorganization of the NFA for the New Millennium.*

TABLE A3.12: Agency Cost Estimates of the Proposed Decoupling of NFA's Functions, 1997
(billion pesos)

Component	Cost
Economic Welfare Inefficiencies	7.7
Fiscal Burden	1.7
Total Agency Cost	9.4

study) to NFA's charter on procurement pricing, release pricing, and rice imports were analyzed using a partial equilibrium model of the Philippines' rice market, covering an 8-year period.

Table A3.13 sets out the structural equations and identities used in the model. Of the 15 equations, 10 are identities and 5 are behavioral equations. Parameters of the model (not reported here) are estimated from historical data. In the model, prices received by farmers are linked with wholesale prices on the assumption that wholesalers deduct their costs and then offer farmers the residual. Area harvested is determined by seasonal variations in growing conditions, which are incorporated by dummy variables for each quarter of the year, and climatic conditions, which are allowed for by a rainfall variable. Total demand is made up of demand for food purposes, feed, seeds, changes in stocks, and exports. It is determined by rice output and the relative price of rice. Exports are given exogenously. Rice supply is composed of rice output, stocks at the start of a quarter, and imports, which are also exogenous. In the model, area harvested is not related to the farm-gate price of paddy, although yield per hectare is, through

the relative price variable that compares paddy and fertilizer prices. This is seen in the policy simulations below where changes in farm-gate prices have an impact via yields, not area harvested.

The model works through the equilibrium condition that, each quarter, wholesale prices adjust to clear the market. If there is excess demand in a particular quarter, prices are adjusted upward using an iterative process. Similarly when there is excess supply, prices are adjusted downward iteratively. However, price adjustment for each quarter are kept within the historical range of proportionate changes from one quarter to another to avoid unrealistic price swings. Any uncleared excess demands after exhausting all price adjustments within the historical range, are subtracted from stocks; similarly, any excess supplies are added.

The model is used in a quantitative analysis of two aspects of the policy loan (although this section of the consultants' report is not used in the final program loan report). The policy changes tested with the model involved changes to the procurement pricing policy of the NFA to offer farmers a seasonal premium to the price of rice

TABLE A3.13: Partial Equilibrium Rice Model

Equation 1: (Behavioral equation)

P^f_t = Constant + Log P^r_t
Farm-gate paddy price   Wholesale rice price

Equation 2: (Behavioral equation)

A_t = Constant - RF_t + AS_t + CI_t -DV1 -DV2 -DV3
Area harvested   Rainfall   Seasonal index   *   Dummy quarter 1   Dummy quarter 2   Dummy quarter 3

Equation 3: (Behavioral equation)

Y_t = Constant -FPPR -DV1 + DV2 -DV3 +T_t
Yield   Fertilizer price/   Dummy quarter 1   Dummy quarter 2   Dummy quarter 3   Technology index
             Paddy price

Equation 4: (Identity)

Q^p_t = $A_t \cdot Y_t$
Paddy output   Area harvested times yield

Equation 5: (Identity)

Q^r_t = $0.654 Q^p_t$
Rice output   0.654 times Paddy output

Equation 6: (Identity)

BS^r_t = ES^r_{t-1}
Beginning of quarter rice stock   End of previous quarter rice stock

Equation 7: (Behavioral equation)

$ES^r_{t;1}$ = Q^r_t (constant -RP^r_t +DV1 +DV2 +DV3 - P^r_t) -u
End of previous   Rice   CPI   Dummy   Dummy   Dummy   Whole   Un-
   quarter rice stock   output   deflated   quarter 1   quarter 2   quarter 3   sale   cleared
                        real   rice   excess
                        wholesale   price   demand
                        rice price   for price

Equation 8: (Identity)

M_t = $MBAR_t$
Rice Imports   Policy determined rice imports

Equation 9: (Identity)

R^s_t = $0.075 A_t$
Rice for seed   0.075 times area harvested

Equation 10: (Identity)

R^f_t = $0.04251 Q^r_t$
Rice for feed   0.04251 times rice output

Equation 11: (Identity)

X_t = $XBAR_t$
Rice exports   Exogenously determined rice exports

Table 13 (cont'd.)

Equation 12: (Behavioral equation)

$PCR^c_t =$	(constant	$+ Q^r_t$	$- RP_t$	) a
Per capita rice consumption		Rice output	CPI deflated real wholesale rice price	Adjustment to calibrate estimated consumption to historical levels

Equation 13: (Identity)

$R^c_t =$	$POP_t PCR^c_t$
Rice consumption	Population times per capita rice consumption

Equation 14: (Identity)

$DEM_t =$	R^c_t	$+ R^s_t$	$+ R^f_t$	$+ ES^r_t$	$+ XBAR_t$
Total rice use	Rice consumption	Rice for seed	Rice for feed	Rice stocks	Rice exports

Equation 15: (Identity)

$SUP_t =$	Q^r_t	$+ BS^r_t$	$+ MBAR_t$
Total rice supply	Rice output	Beginning of quarter rice stocks	Rice imports

Equilibrium condition (1):

$DEM_t =$	SUP_t
Total rice use	Total rice supply

Equilibrium condition (2):

Historical $o^L \leq (P^R_t / P^R_{t+1})$ -1 $\leq$ Historical o^h

Notes: *CI is not defined in the source.
   Equilibrium condition (2): Price adjustments were confined to historical range of proportionate changes from quarter to quarter.
   t refers to quarters.
Source: DAI Consultants. 1998. Philippines Grains Sector Development Program Project. Final Report, Vol. 1, Chapter 2 (ADB TA 2717-PHI).

imports as a means of stabilizing prices and reducing shortages.

The case for seasonality in rice procurement pricing arises from the fact that there are two distinct seasons—one dry (March to August harvest) and the other wet (September to February harvest)—and the cost of production and yield, as well as of storage, varies significantly between these two seasons. The dry season period is one of relatively scarcity when market prices tend to go up and the seasonal procurement pricing, with a dry season premium, would encourage farmers to increase the dry season harvest.

Rice imports in the Philippines have been made on an ad hoc basis in light of domestic supply conditions, with the consequence that they have often arrived at the wrong time in the agricultural cycle. The consultants recommended formalizing a decision on imports by 30 April each year, as well as allowing the private sector to import a proportion of the import quota.

Of these policy changes, the one that allows a regular flow of imports is handled very simply in the model by setting the imports at 300,000 metric tons (or approximately 5% of domestic output) each year for the projection period 1997–2004. Hence, MBAR in equation 15 is set at 300,000 annually. The timing of import arrivals during the year is not made clear in the text. The method of allowing for the changes in NFA procurement prices is even more unclear however (particularly because it is not given in equational terms). It appears from the text that equation (1) is re-specified to make farm-gate prices for paddy a function of the NFA procurement price—as well, it seems, as the wholesale price, but the variables included in the new version of equation (1) are not discussed. The NFA price is increased above current levels to include a seasonal premium presumably taken from historical data on the average relation between market prices for paddy in the dry and wet seasons. The adjusted NFA price is then projected into the future.

These two adjustments work in opposite directions. The higher NFA procurement price increases the price received by farmers for paddy relative to what it would be without the seasonal premium. Higher paddy prices increase yields due to their assumed impact via higher fertilizer use (see equation 3) and this increases output since area harvested is assumed to be unchanged. However, this upward pressure on farm-gate prices from the change in procurement policy is swamped in the model by the depressing impact on prices of higher rice imports (the level of rice imports without the policy reform is not stated

in the text). Higher imports depress wholesale prices through their impact on supply (via equation 16) and lower wholesale prices mean that farm-gate prices for paddy are also depressed. Lower farm-gate prices mean lower rice output, as yields respond positively to paddy prices (see equation 3). Hence, in the policy reform scenario, both farm-gate prices and domestic rice output are lower than they would be without reform. However, wholesale prices and hence, prices also paid by consumers are lower than they would be without reform and consumption of rice would be higher. Tables A2.14 and A2.15 summarize the model results for the with- and without-reform scenarios, showing annual income changes for rice producers, who loses from the reforms, and for rice consumers, and who gains.

The logic of the analysis can be illustrated in Figure A3.4 using a simple competitive framework and linear demand and supply curves. The analysis is slightly complicated, since in the rice model, the supply line refers to paddy output while the demand line refers to the final good rice. Hence, we show supply and demand lines in different diagrams. Producers face a lower paddy price (from $P^f 1$ to $P^f 2$) and a falling paddy output (from $Q^P 1$ to $Q^P 2$). Producer losses are, therefore, a combination of a lower price for their new output

$$Q^P 2 * (P^f 1 - P^f 2)$$

and the net loss as a result of their fall in output

$$0.5 ((P^f 1 - P^f 2) * (Q^P 1 - Q^P 2)).$$

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FIGURE A3.4: Paddy Supply and Rice Demand

Paddy Supply

Rice Demand
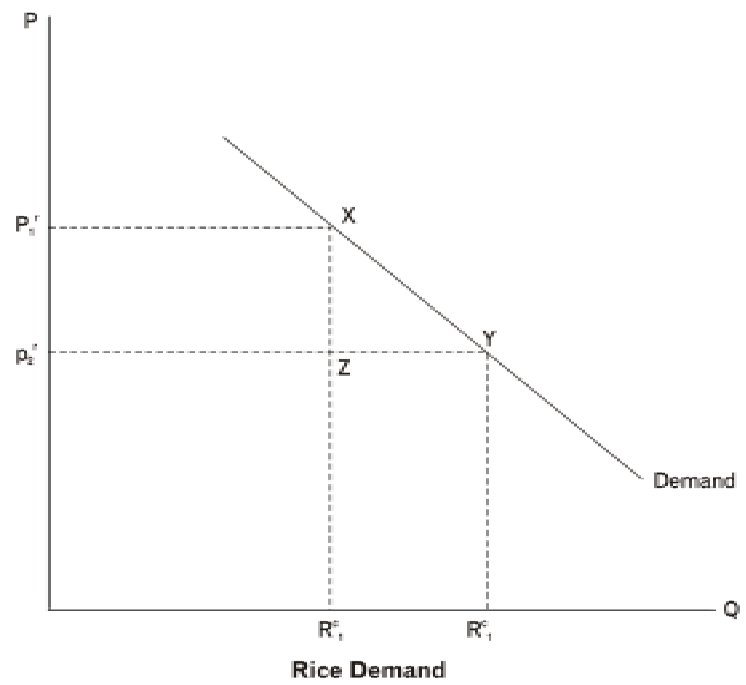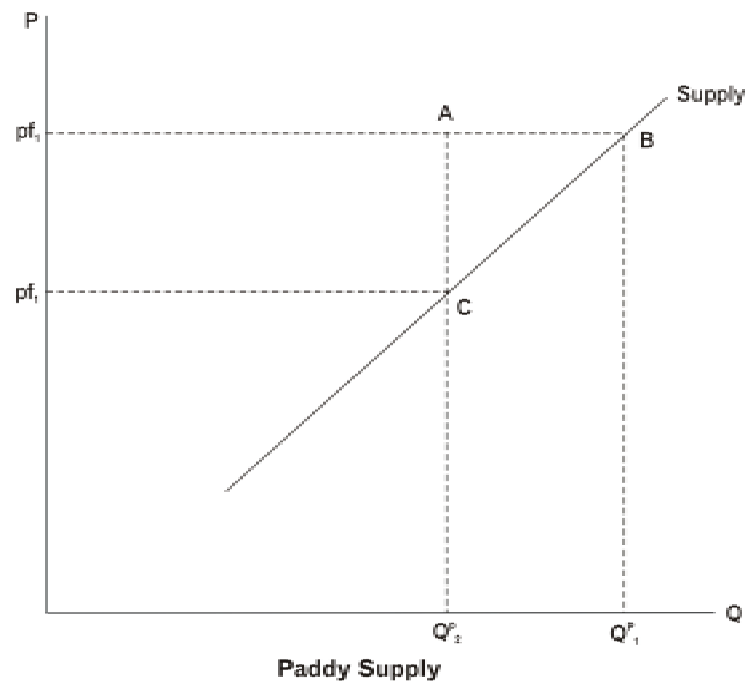
This latter term allows for the fact that although output is lost, there is also a cost saving so that the net loss is only equivalent to the triangle ABC in Figure A3.4.

A similar analysis applies to consumers. Consumers face a lower rice price (from $Pr1$ to P^r2) and a rise in consumption (from R^c1 to R^c2). Consumers gain from the lower rice price for their original consumption

$$(R^c1 * P^r1 - P^r2)$$

plus their consumer surplus from their additional consumption

$$(0.5 * (P^r1 - P^r2) * (R^c2 - R^c1)).$$

This latter term is the difference between what they actually pay for the additional rice and what they are willing to pay. It is shown as the triangle XYZ in Figure A2.4. The analysis assumes that none of the change in wholesale price of rice is captured by traders in higher profit margins at the retail stage.

Tables A3.14 and A3.15 show the annual income changes for rice producers and consumers respectively for the period 1997–2004. These are discounted at a 12% rate to give present values for income changes resulting from the policy intervention. In present terms, producers lose P46.8 billion, while consumers gain P49.5 billion. There is, therefore, a net gain to society of nearly P3 billion. However, from a poverty perspective, the important issue is what proportion of the income changes for consumers and producers accrue to those below the poverty line.

A poverty profile of consumers and producers is not given in any detail in the consultants' report. However, some relevant data can be extracted. First, there is an estimate taken from another source that for 1995, the poor take 47% of national rice consumption (DAI Consultants 1998, Table 4.13). In relation to production, no direct data are available. However, some inferences can be drawn. There are statistics on earnings per hectare on paddy farms taken from the Bureau of Agricultural Statistics (Table 2.6, consultants' report). These show an average income for paddy farmers (including off-farm income) of P57,899 in 1995. At the then exchange rate (P39/$), this is $1,484 per family per annum. Assuming six family members, this is about $247 per annum per person or well below the minimum $1 a day international poverty line. Hence, on the average, paddy farmers will be below the poverty line, so the expectation is that a majority will be poor.

A further insight can be gained by considering net income per hectare data for paddy, again taken from the Bureau of Agricultural Statistics (Table 2.9, consultants' report). Tables A3.15 and A3.16 give the net income per hectare figures and the number of hectares required to reach the $1 a day poverty line (assuming six family members). For irrigated farms, approximately 17 hectares are needed and for nonirrigated, 21 hectares. Data on land distribution are not presented in the consultants' report, but if we know what proportion of land is farmed in units of less than these sizes, we can make approximate inferences on the

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TABLE A3.14: Rice Production With and Without Policy Reforms

Year	Paddy Output '000 MT (Q2)	Area Harvested '000 ha	Yield MT/ha	Paddy Farm-gate Price P/kg (P2)	Paddy Output '000 MT (Q1)	Area Harvested '000 ha	Yield MT/ha	Paddy Farm-gate price p/kg (P1)	Fall in Paddy Output '000 MT (Q1-Q2)	Fall in Paddy Price P/kg (P2-P1)	Fall in Income for Paddy Producers P million
	With Reform				Without Reform						
1997	11,402	3,906	2.918	9.1	11,440	3,906	2.9	9.7	38	0.6	6,875
1998	11,467	3,906	2.935	10.1	11,505	3,906	2.9	10.7	38	0.7	8,067
1999	12,214	4,138	2.951	11.2	12,254	4,138	3.0	11.9	40	0.7	9,206
2000	11,629	3,906	2.976	12.0	11,652	3,906	3.0	12.6	23	0.6	7,231
2001	11,647	3,906	2.982	13.5	11,681	3,906	3.0	14.5	34	1.0	11,113
2002	11,702	3,906	2.996	15.0	11,735	3,906	3.0	16.0	33	1.0	11,869
2003	11,753	3,906	3.009	16.5	11,785	3,906	3.0	17.5	32	1.0	12,273
2004	11,593	3,837	3.021	18.0	11,623	3,837	3.0	19.1	30	1.1	12,802

Present value of producer loss at 12% = P46,759 million

Note: Loss to producers = (P1-P2)*Q2 + 0.5(P1-P2)*(Q1-Q2), where P1 is original paddy price, P2 is new paddy price, Q1 is original domestic supply, Q2 is new domestic supply.
Source: DAI Consultants. 1998. Philippines Grains Sector Development Program Project. Final Report, Vol. 1, Chapter 2 (ADB TA 2717-PHI).

share of rice production grown by poor farmers.

While not without some apparent technical problems, Table A3.13 is an illustration of what can be done using a partial equilibrium approach. Additional information is needed to convert this into a full general equilibrium study but it provides a helpful case illustration.

TABLE A3.15: Rice Consumption With and Without Policy Reforms

Year	Rice Consumption '000 MT (C2)	Rice Wholesale Price P/kg (P2)	Rice Consumption '000 MT (C1)	Rice Wholesale Price P/kg (P1)	Rise in Paddy Consumption '000 MT (C2-C1)	Fall in Wholesale Price P/kg (P1-P2)	Gain in Income for Rice Consumers P million
	With Reform		Without Reform				
1997	7,191	18.4	6,912	19.5	279	1.0	7,228
1998	7,292	20.3	6,996	20.7	296	0.4	2,808
1999	7,587	22.6	7,295	24.0	292	1.4	10,127
2000	7,558	24.3	7,320	25.5	238	1.3	9,336
2001	7,466	27.5	7,129	29.4	337	1.9	13,741
2002	7,472	30.5	7,144	32.5	328	1.9	14,104
2003	7,499	33.6	7,177	35.6	322	2.0	14,669
2004	7,441	36.9	7,117	39.0	324	2.1	15,199

Present value of consumer gain at 12% = P49,500 million

Notes: Gain to consumers = (P1-P2)*C1 + 0.5(P1-P2)*(C2-C1) where P1 is original wholesale rice price, P2 is new wholesale rice price, C1 is original consumption, C2 is new consumption.
    Some data from the original report have been modified to avoid an apparent inconsistency in the 1997 values.
Source: DAI Consultants. 1998. Philippines Grains Sector Development Program Project. Final Report, Vol. 1, Chapter 2 (ADB TA 2717-PHI), Tables 4.8 and 4.10.

TABLE A3.16: Net Income from Paddy Farming, 1995

	Annual Net Family Income (P/ha)	Annual Net Family Income ($/ha)	Annual Net Income per Person ($)	Hectares Needed for $1 a Day per Person
All	4,129	105.9	17.7	20.7
Irrigated	5,018	128.7	21.4	17.0
Nonirrigated	4,023	103.1	17.2	21.2

Note: Calculations are based on an exchange rate of P39/$, 365 days per year, and an assumption of six members per family.

Overall, as described in the program loan report, the model indicates that the cumulative impact of the reforms are higher rice yields, farm-gate prices, and total rice production, and lower prices for consumers, with a marginal increase in rice imports. Aggregate benefits include a combined income gain of producers and consumers of $0.2 billion over the simulation period, and an 11% income gain for the poor through targeted subsidies compared to the current 1.4%.

E. CASE 5. Nepal: Second Industrial Sector Study: Computable General Equilibrium Modeling for Trade and Industrial Policy Measures

1. Relevance of CGE Analysis

As introduced in Chapter 4, computable general equilibrium (CGE) analysis is applied to a broad range of policy issues, which include the following: (i) exogenous shocks (e.g., increase in the price of imported oil or a decline in the price of a country's main exports); (ii) economic policy changes (e.g., changes in the size and composition of a government's current expenditures and investment); and (iii) changes in the domestic economic and social structure such as technological change in agriculture, asset redistribution, and human capital formation (Sadoulet and de Janvry 1995). A CGE model is an aggregate representation of the economy and provides quantitative evaluations of the outcomes of these policy changes. It simulates the behavior of a market economy wherein quantities and prices adjust to clear all markets. CGE models take into account the interactions of the economic agents (i.e., households, firms, government, etc.) and reflect the circular flow of income or resources among these agents. Because they emphasize the impact of reallocating resources across sectors of an economy, these models are useful tools for identifying gainers and losers under a policy change (Kehoe and Kehoe 1994).

In essence, a CGE model attempts to capture the sets of relative prices, initial conditions, and quantities that characterize a general equilibrium condition in an economy. The decisions of economic agents are based on their

responses to prices. These result in levels of production for each economic agent so that demand equals supply in all product and factor markets (i.e., there are no excess demands for commodities and services). Starting with this equilibrium condition (the "base case"), an external change in economic condition is introduced which causes a shift in resources, leading to the establishment of a new equilibrium. An exogenous shock (e.g., an oil price increase) tends to alter relative prices and the allocation of goods among consumers and of resources among productive activities (in view of interconnected markets), putting the economy into disequilibrium at existing demand and supply levels. Given such a shock, a CGE model will simulate the impact and the succeeding interactions of the various sectors of the economy, and it will estimate the new set of relative prices necessary to reestablish the equilibrium solution (i.e., supply equals demand in each market). Comparisons are made on the new values vis-à-vis the original base case figures for the whole economy and for each sector. In CGE modeling, the objective is usually not to forecast the exact outcome of policy measures but to give only an indication for the direction and size of the effects (Thissen 1998).

CGEs are almost all set up in "real" terms. A numeraire or a price index (e.g., consumer price index, exchange rate, aggregate producer price) is chosen as a constant to define a unit of account for all nominal values. There are no asset markets, money is neutral, and all economic agents make decisions on the basis of relative prices rather than to the absolute level of any price. Hence, the model will then only solve for relative prices (Sadoulet and de Janvry 1995). This implies that the economy does not suffer from money illusion (i.e., doubling prices will increase the monetary value but will not affect the real value of transactions in the economy).[7]

2. Steps in Computable General Equilibrium Modeling

Reed (1996) indicated that the basic idea behind a CGE is to build an analytically consistent mathematical model of an economy; collect data for some time period on those variables for which data are available; and then use the characteristics of the economy in that time period to solve the model numerically. This last stage is performed computationally using computer software. The initial step in building a CGE model involves the formulation and collection of economic data into a social accounting matrix (SAM) to form a consistent data set for a given base year. A SAM is a square matrix that indicates the national accounts data in consistent format and describes a flow of resources between various economic agents and factor markets and institutions. It is an extension of an input-output (I-O) table and uses a double entry bookkeeping system to trace monetary flows through debits and credits. A SAM is organized in such a way that receipts (rows) and expenditures (columns) are in balance.

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[7] The World Bank's Integrated Macroeconomic Model for Poverty Analysis (IMMPA) Project (World Bank 2001a) is an attempt to merge this with monetary economic models.

It records the values of transactions in the base year. In effect, it is a portrayal of the statistical state of the economy at that point in time (i.e., the base year). The basic structure of a SAM is provided in Figure A3.5.

After the establishment of a consistent database, the next process concerns the general design of the economic relationships to be modeled. This involves choosing the number and types of economic agents in the model. Then, a choice or optimization problem is specified (through algebraic equations) for each agent. As an example, producers in each sector maximize profits, subject to their available technology and production costs. They can also decide whether to sell on the domestic market or to export on the basis of relative prices. It can also be assumed that households maximize utility, subject to their budget constraints. Factors of production (i.e., land, labor, and capital) are paid in accordance with their respective marginal productivity. CGE models also incorporate macroeconomic

Figure A3.5: A Typical Social Accounting Matrix

	Industry	Commodity	Factors	Institutions	Government	Trade	Total
Industry		Produce					Total industry output
Commodity	Utilize			Consumption		Exports Output	Total commodity
Factors –land –labor –capital	Returns to primary factors (value added)					Exported primary factors (e.g., labor flow)	Total factor income
Institutions –households –others	Sales	Sales	Distribution of factor income		Transfer payments	Exports	Total institu-tional income
Government	Indirect Business taxes	Sales tax	Factor taxes		Inter-govern mental transfers		Total government income
Trade	Imported purchased inputs	Imports	Imports			Trans-ship ments	Total imports
Total	Total industry outlay	Total commodity outlay	Total factor outlay	Total institutional outlay	Total government outlay	Total exports	

Source: Vargas et al (undated).

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relationships, such as the balance of payments, savings-investment gap, and government budget.

Once the economic agents are identified and their optimizing behaviors specified, the parameters in these equations must be solved or "calibrated" to reproduce (or exactly replicate) the benchmark data on the observed economic transactions in the database, as indicated in the SAM. This involves using the SAM data along with a limited amount of additional information to determine the values of all parameters in the model. For some of the equations, calibration can be done directly from the SAM (Buehrer and di Mauro 1993). A CGE allows for an arbitrary choice of a numeraire. A typical practice is to normalize (i.e., data and the model are tested by running the base-year model with all prices set to one) prices and factor rents (e.g., wages) in the initial equilibrium so that a certain price index remains constant. For example, prices can be normalized according to a price index based on consumption weights (Kehoe and Kehoe 1994). Sadoulet and de Janvry (1995) indicated that measurement units for labor categories can be chosen so that all wages are initially equal to one. Similarly, measurement units for quantities of domestic commodities, imports, and exports are chosen so that the consumer prices of domestic goods and imports, the world price of exports, and the exchange rate are all equal to one in the base year. With the normalization rule, all initial quantities and prices can be computed and parameters that are directly computed from shares can be easily derived (Sadoulet and de Janvry 1995).

In CGE, "closure" of the model is done to introduce macroeconomic constraints that limit the microeconomic behavior of economic agents. This also involves the selection of which variables in the model are to be exogenous (e.g., policy parameters such as tax rates, tariffs, and subsidies). Additional endogenous variables may be introduced to balance a particular constraint (Thissen 1998). Given the limited number of parameters that can be determined by the calibration technique, calibrating other parameters may require data not indicated in the SAM. It is necessary to supplement this process by assigning parameter values, such as price and income elasticities, either derived from secondary sources (i.e., research/econometric studies) or based on the model builder's judgment.

The equations in the CGE model may be substituted and rearranged in order to reduce the solution problem as much as possible before solving it by an appropriate software package. The idea is to reduce the model to a set of excess demand equations for product and factor markets so as to generate the set of equilibrium prices and factor rents. For example, given some initial prices and wages, excess demands in both product and factor markets can be calculated by the computer. Then, the wages and prices are revised iteratively based on the calculated excess demands. This iteration process will continue until an equilibrium is reached (i.e., a set of prices and wages is found so small that all excess demand is sufficiently close to zero). If both the model and the data are consistent, the model will be able to solve and generate the benchmark data. Inconsistency exists in either the

specification of the model or the data when there is a discrepancy between the actual and generated data set (i.e., prices deviate from unity). In such a case, a revision will be necessary. This procedure also implicitly provides an indication on whether the complete circular flows of income and expenditures in the SAM are in balance.

Counterfactual experiments can be conducted by introducing changes in the exogenous variables or parameters, in policy reforms, and in market conditions, and by rerunning the model using a software program. A comparative numerical static analysis of the change in external condition, to examine the base-case equilibrium situation vis-à-vis the new equilibrium after the exogenous shock has occurred or policy measures have taken place, can then be undertaken. The results of static simulations are often interpreted as representing how the economic system in question would have looked, had the new policy been in place in the base year, after all relevant adjustments had been made (Gilbert and Wahl 2000).

3. General Description of the Nepal Computable General Equilibrium Model

The Nepal CGE model is a disaggregated multisector model with 12 productive sectors and three household groups. The database for the Nepal CGE consists of an aggregate SAM and estimated elasticities. The SAM consisted of 11 separate accounts with all productive activities and households aggregated. The first two accounts in the SAM are classified under the heading of Production Accounts. Account 1 (activities) represents the transactions of producers with entries in the activities column representing the aggregation of the sector accounts. On the other hand, Account 2 (commodities) indicates the transactions of the consumers. Combining these two accounts yields the standard national income accounts identity for gross total domestic production equal to total use of resources. Accounts 3 and 4 (factors) describe the payment to factors of production and distribution of factor income to institutions, while accounts 5, 6, and 7 (institutions) represent, together with enterprises, the major economic actors in the economy. Government, households, and tourists are treated separately, reflecting their behavioral specifications. Account 8 (capital) represents the balance between total investment and total saving. Foreign saving is defined in accounts 9 and 10 (India and Rest of the World) as the difference between foreign exchange inflows and outflows. Account 11 (totals) sums up the total expenditure and receipts for each account and indicates consistency in the database. Table A3.17 sets out the SAM for Nepal for fiscal year 1986/87.

The explicit parameters, such as the marginal propensity to save, consumption expenditure shares, and input-output coefficients, are shares derived from the SAM data. On the other hand, the values of exogenous parameters (e.g., export demand elasticities) are either assumed or based on estimates from other econometric studies. The endogenous parameters (i.e., price and income elasticities) are

TABLE A3.17: Aggregate Social Accounting Matrix for Nepal, 1986/87
(NRs million)

Account	Expenditures										
	Acti-vities	Commo-dities	Labor	Capital	House-holds	Tou-rists	Govern-ment	Capital Acct.	India	Rest of the World	Total Receipts
Activities		81,773				1,630	12		3,044	2,771	89,229
Commodities	31,876				48,578		5,692	15,702			101,848
Labor	21,182										21,182
Capital	34,104										
Households			21,151	30,993						1,203	53,347
Tourists									532	1,208	1,741
Government	2,067	6,944	31	407		111				1,469	11,028
Capital Acct.				2,705	4,769		5,324				12,798
India		7,056						-3,480			3,576
Rest of the World		6,076						575			6,651
Total Expenditure	89,229	101,848	21,182	34,104	53,347	1,741	11,028	12,798	3,576	6,651	335,502

Source: Maxwell Stamp Consultants. 1991. Nepal Second Industrial Sector Study, Final Report, Annex (ADB TA 1047-NEP).

implicitly derived from the underlying relationships and the data set out in the SAM, and can be estimated through simulation.

The Nepal CGE is closed with an assumption about the level of saving and investment. Saving is fixed by specifying the level of capital inflows. Total investment is also fixed but is distributed between sectors by market forces. With capital inflows specified, the trade deficit in real terms remains fixed and varying only in relative price terms.

4. Policy Simulation and Implications

The primary application of the Nepal CGE modeling exercise is to identify the economy's potentials in undergoing policy-induced changes in the industrial and trade regimes through variations in tariffs, export subsidies, and the exchange rate. A series of case studies were undertaken to identify the mix of policy options. The "no policy change" scenario represented the base case against which the proposed policy packages were judged. These results are based on the technical assistance (TA) consultants' report on the Nepal Second Industrial Sector Study (ADB TA 1047-NEP). Table A3.18 sets out these various policy experiments.

A decrease in the nominal protection rate was conducted under C2 with the imposition of a uniform 30% tariff and a corresponding removal of excise taxes and import licensing premium. To compensate for the shortfall in revenue as a result of the tariff rate cuts, direct taxation was introduced, which was the least distortionary. A 35% devaluation of the currency was carried out to improve export competitiveness. In the C3 policy experiment, a 20% subsidy was added to the tariff, foreign exchange, and tax

TABLE A3.18: Trade and Industrial Policy Case Studies, Nepal

Scenarios	Characteristics
C1	Base case that assumes no policy change.
C2	The immediate introduction in 1991 of a uniform 30% tariff rate on all imports; removal of import licenses, excise, and export taxes; a revenue-compensating increase in direct taxation by 10%; and a 35% devaluation against the Indian rupee and other foreign currencies.
C3	Same as C2 plus a 20% subsidy on third country exports.
C4	The phased 3-year introduction of policy measures specified in C3 with the same tariff and tax rates achieved by 1993.
C5	Phased introduction of 15% uniform tariff rates, introduction of a 10% export subsidy, harmonization of 10% excise and sales taxes, removal of export taxes, and an increase in the rate of direct taxation.

Source: Maxwell Stamp Consultants. 1991. Nepal Second Industrial Sector Study, Final Report, Annex (ADB TA 1047-NEP).

changes, which were introduced in C2, to offset the 30% uniform tariff rate. The subsidy will be covered through an increase in the direct taxation rate of about 15%. The C4 simulation test was carried out to accommodate timing/phasing of structural reform proposals. The same policy reforms introduced in C3 were carried out but these were phased over a 3-year period. The C5 policy experiment was a variant of C4. To illustrate the impact of policy reform on economic growth, results from C2, C3, and C4 simulations were compared with those of C1 to illustrate the impact of these policy changes; while results from C5 were compared with those of C3 and C4. Table A3.19 reports the results of the simulation runs (though some macroeconomic indicators such as GDP, and export and import growth could not be readily derived/inferred since these were presented in graphical formats).

Some policy implications can be derived from these simulations on the reform proposals (pp. 241–242 of the Consultants' Final Report). The introduction of a uniform 30% tariff, together with the 20% export subsidy, is deemed to have the following effects:

(i) A stable balance of payments position can be maintained if these reform measures are introduced with a corresponding 35% devaluation. Stability in the government budgetary position can also be sustained if there is an attendant increase in revenue, either through direct taxation or a neutral sales tax, and without a concomitant rise (in real terms) in public recurrent expenditures.

(ii) Trade liberalization leads to a contraction in import-substitution activities. There is only a partial expansion in exports owing to the limited ability of producers to switch markets in the short run. Third country export growth is projected to increase partly at the expense of exports to India.

(iii) Policy reforms result in stronger manufacturing sector activity. Export-led growth in the manufacturing sector results in a higher rate of capital accumulation

APPENDIX 3

TABLE A3.19: Simulation Results, Nepal (%)

	Scenarios				
	C1	C2	C3	C4	C5
Average Annual Growth rates (1990–2000)					
Capital Stock	8.2	10.1	11.2	10.7	11.1
Real Rural Wages	3.2	3.9	4.4	4.3	4.2
Real Urban Wages	2.6	3.7	4.7	4.5	4.4
Terminal Year Shares (2000) Composition of GDP					
Agriculture	45.1	42.3	42.3	42.7	41.8
Manufacturing	9.3	10.9	12.6	12.6	12.0
Services	45.7	46.7	45.1	44.6	46.2
Investment Rate	12.6	14.5	15.4	15.5	15.4
Economy-Wide Profit Rate	21.4	18.6	16.4	17.6	15.5
Exports/GDP	15.4	18.2	20.3	19.8	20.2
Imports/GDP	19.1	24.7	28.3	28.5	27.1

Source: Maxwell Stamp Consultants. 1991. Nepal Second Industrial Sector Study, Final Report, Annex (ADB TA 1047-NEP).

and a more robust growth in real wages across the economy. Given that the vast majority of households own labor rather than capital, it is surmised that the distribution of income will improve with trade liberalization.

(iv) A delay in the implementation of reform proposals causes efficiency losses to the economy and translates into a drop in real GDP, as compared with the scenario of immediate implementation. With delayed implementation, capital stock accumulation and real wage growth are slightly lower, as compared with the figures generated under the "immediate implementation" scenario.

(v) Growth rates for the carpets, garments and textiles, other manufacturing, construction, and cash crops subsectors are significantly higher with liberalization. However, the growth rates experienced by the food crop, agro-industry, tourism, and public sectors are similar under the liberalization and "no change" case studies.

APPENDIX 4

ADJUSTMENT COSTS IN ADB POLICY OPERATIONS— AN INVENTORY OF APPROACHES USED

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
KAZ: Pension Reform Program ($100 million)	• Creation of an enabling, regulatory, and institutional framework for a modern pension system • Increase public awareness of the pension reform • Enhance administration and management capacity of the pension system • Ensure financial sustainability • Ensure social sustainability	• Costs of transition to the new pension system including payment of arrears from existing system (to establish a sound financial basis for the new system)—specifically the fiscal costs/funding of deficits in the residual of the old system for existing and future retirees	• Estimation of the fiscal costs of transition (funding of the deficit) over the medium term (1997–2002), discounted by 12% to estimate the total and annual adjustment costs • Estimation of the fiscal costs of establishing regulatory agencies, establishment of a system for pension contributions information, payment and clearing functions Supporting studies: • ESW and policy options paper (Health Sector Development ADTA) • Health Sector Resources Development TA • Strengthening Health Insurance ADTA • World Bank Study Mongolia Poverty Assessment in a Transition Economy
MON: Health Sector Development Program (Policy $4 million, Investment Loan $11.9 million)	• Promote family group practice (FGP)-based primary health care (PHC) as opposed to hospital-based curative care. • Encourage private sector participation • Rationalize health facilities and personnel • Improve finance and management • Protect poor and vulnerable groups	• Costs of transition to the FGP-based system including the capitation payment for the family doctors and salaries for nurses, rent, heating, electricity, water, essential drugs, basic laboratory equipment, and supplies • Rationalization of hospital facilities in Ulaanbaatar • Relocation/training costs for nonmedical personnel • Primary health care services upgrading • Reform of hospital services • Development of rural health services and referral system • Management strengthening • Institutional strengthening	• The cost of FGP is estimated at about $5 per capita per year Supporting studies: • ESW and policy options paper (Health Sector Development ADTA) • Health Sector Resources Development TA • Strengthening Health Insurance ADTA • World Bank Study Mongolia Poverty Assessment in a Transition Economy

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
UZB: Education Sector Development Program ($38.5 million)	• Modernize structure, contents, and processes of education services • Improve sector sustainability and efficiency • Reform sector governance • Protect poor and vulnerable groups	See Case 3 in Appendix 3.	• Aggregations are based on a few basic data such as average salary per staff category, estimated training and relocation costs, level of stipends, operating costs per student. Details are presented in Supplementary Appendix: Budget Impact of the Principal Policy Measures.
SRI: Private Sector Development (Cluster) Program (Subprogram I $100 million and Subprogram II $50 million)	• Privatization, divestment or restructuring of identified public enterprises engaged in commercial activity • Commercialization of public enterprises under government control through a corporate governance framework • Private sector participation in infrastructure • Improvement of competition policy and consumer protection through Consumer Protection Authority (CPA) legislation and establishment of an operational authority • Remove labor-market rigidities through strengthening of processes of dispute resolution and arbitration • Improved private sector access to finance through further fiscal consolidation and reduction of the crowding out effects of government borrowing in the market, improved efficiency of financial mediation, and capital market development	• Public Enterprise Reform Commission restructuring-related operating costs ($5 million) • Cost of enterprise restructuring ($271 million) • Costs of retiring workers for public enterprises for divestment ($395 million) • CPA establishment and operating costs ($1.4 million) • Insurance Board and Private Superannuation Benefits Funds Regulatory Commission establishment and operating costs ($3 million) • Support for Social Safety Net Fund (Skills Development Fund) ($17 million) • Costs of formulating restructuring plans for state banks ($6 million) • Costs of establishing deposit insurance scheme (zero) • Cost of government shift from direct borrowing to market-based instruments ($202 million)	• PPTA/Mission financial analysis of public enterprises • PPTA/Mission financial analysis of proposed institutions • PPTA/Mission demand assessment for skills training and financial cost estimation • Institutional and financial analysis of bank restructuring • Financial analysis of deposit insurance scheme introduction • Financial analysis of shift from direct borrowing to market-based instruments Supporting studies: • ESW updates carried out by the mission and supported by findings of a USAID study on private sector competitiveness

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
IND: Gujarat Public Sector Resource Management Program ($250 million)	• Strengthening of state finances and their management, including revenue augmentation • Expenditure, prioritization, monitoring and control in the Core Investment Program, raising cost recovery, subsidy reduction, privatizing selected services • Development of fiscal policy and management capabilities and strengthening of tax administration • Privatization or divestment and restructuring of 23 of 54 SOEs, and provision of a social safety net for retrenched workers • Development of the enabling environment for private sector involvement in infrastructure projects (power, ports, roads sectors) • Institutional strengthening of the State Finance Department	• Revenue implications of tax restructuring including revenue losses associated with tax reforms and loss offsetting through improved tax compliance resulting from reduction and rationalization of tax rates, widening of tax base, and strengthening of tax administration • Cost offsetting factors and overall budget implications of restructuring, including: • SOE debt settlement ($283 million) • cost of SOE labor rationalization ($129 million) • divestment proceeds • improved cost recovery (e.g., arising from power tariff increase) ($198 million) • SOE subsidy savings ($71 million) • Revenue losses associated with tax reforms ($302 million) • Revenue gains from enhanced tax compliance and tax-base broadening • Project development and feasibility studies for power, ports, and roads ($25 million)	• A Medium-Term Fiscal Policy Framework was developed by the mission in collaboration with Gujarat Finance Department to analyze and project the fiscal situation (e.g., revenue receipts, tax transfers, current and capital outlays, loans and advances, etc.) • Public finance analysis (including detailed tax analysis) through TA support • Detailed case analyses of SOEs through supporting TA • Institutional analysis of Gujarat Infrastructure Development Board Supporting studies: • Support for Gujarat's Public Finance ADTA • Restructuring of State-Owned Enterprises of Gujarat ADTA
VIE: State-Owned Enterprise Reform and Corporate Governance Program ($100 million)	• Promotion of an enabling environment for foreign direct investment • Supporting development of private enterprises by allowing non-state enterprises to use their land-use rights as equity contribution in joint ventures, unifying tax	• SOE labor retrenchment costs ($112 million) • Costs of financial restructuring for medium and large industrial SOEs, including debt write-offs ($126 million) • Establishment and operating costs associated with	• Mission financial estimates of retrenchment pay and pension contribution • Based on IMF estimates and mission financial estimates • Financial estimates for costs of institutional development (No underpinning ESW)

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
	treatment, strengthening bankruptcy procedures, introduction of summary judgment procedures for noncompliance with contractual obligations • Industrial SOE restructuring by improving the institutional and regulatory framework for SOE reform, accelerating industrial SOE reform, improving corporate governance and financial discipline • Enhanced labor mobility through greater flexibility in the social security system	institutional development, including one-stop shops for foreign investment approvals/ licensing, and securities trading centers, accounting and auditing standards office, costs of adoption of international accounting standards by SOEs ($50 million)	
PAK: Trade, Export Promotion and Industry Program ($300 million)	• Augmentation of trade liberalization process, including reduction, rationalization and simplification of the tariff structure, rationalization and reduction of the Statutory Rules and Orders, phasing out of nontariff barriers for imports and exports • Modernization of the free trade status policies and administration for exporters • Broadening the coverage and access to financing for exporters • Restructuring of the Export Promotion Bureau, development of private sector trading companies, abolition of state trading bodies, capacity development to deal with international trade environment • Development of investment policy and its effective implementation • Acceleration of restructuring and privatization of public manufacturing enterprises	• Estimation of the revenue losses from tariff rationalization and export duties ($310 million) • Loss of revenue from removal of export duties • Contribution to the Preshipment Export Finance Guarantee Fund, National Accreditation Council, export marketing and product upgrading fund, Foreign Currency Import Finance ($200 million) • Settlement of debt liabilities and severance payments for privatized Public Manufacturing Enterprises (in part to be offset from sale proceeds) ($200 million) • Costs of redundancy payments for workers from restructured or liquidated trade bodies ($200 million) • Cost of restructuring the Export Promotion Bureau ($10 million)	• Analysis of public manufacturing enterprises and trade bodies including costs of debt settlement and retrenchment (undertaken by mission) • Institutional restructuring analysis (by mission) Supporting studies: ESW including: • In-depth update of sector profile (Industry and Trade Sector Study) • Development of a medium-term export strategy (Export Development Strategy) • Analysis of the effects of changing tariff regimes on industrial protection (Analysis of Tariff Reform in Pakistan) and Mission updates

APPENDIX 4

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
INO: Financial Governance Reforms Sector Development Program ($1.4 billion)	• Adoption of best practices in banking, capital markets, and public financial management • Increasing disclosure and transparency in banking, capital markets, and public financial management • Strengthening legal framework in banking and financial management	• Basis of cost estimates not provided	• The program aimed to support efforts to improve resource allocation efficiency within the sector by improving governance of financial and public sector resource allocation. While measures were described for restructuring and liquidations, improved market orientation, bank supervision, increased disclosure, anti-corruption etc., the RRP contains no quantitative details.
THA: Social Sector Program ($500 million)	• Labor market and social welfare program to address (crisis-related) unemployment, poverty program effectiveness, private sector training, and labor force competitiveness • Education sector reforms to address dropout rates (crisis-related), education quality, staff rationalization, decentralization, and private sector education • Health sector reforms to ensure access by the poor and rural health care delivery improvement	• Support for laid-off workers and various initiatives to address growing unemployment ($200 million) • Support for students to prevent dropout ($550 million) • Expansion of health coverage for low-income families ($150 million)	• The loan amount was based on estimated financial costs, in terms of budget implications, for implementing both crisis (e.g., rising unemployment) and institutional reforms. Supporting study: • Social Impact Analysis of the Economic Crisis ADTA
KAZ: Agriculture Sector Program ($100 million)	• Creation of an agricultural land market • Transfer of ownership of state farms to private entities • Liberalization of external trade • Dismantling of state monopoly companies and restructuring of Agroprom bank • Promotion of a market-based rural credit and savings system • Strengthening social protection for adversely affected vulnerable groups • Strengthening environmental management	• Issuance of land share certificates to individual farm workers ($90 million) • Revenue losses as a result of removal of export tax ($40 million/year over the medium term) • Shift to a competitive public grain procurement system will result in a net additional expenditure due to higher grain prices ($40 million/year over the medium term) • Fiscal measures to strengthen social protection ($8 million/year over the medium term)	• The total financial adjustment cost was estimated to be $400 million in present value terms in 1996 (a medium-term horizon of 5 years and a discount rate of 20% were used in estimating the discounted present value). Supporting study: • Strengthening the Implementation of Agriculture Sector Reforms ADTA

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
COO: Economic Restructuring Program ($5 million)	• Public sector reform • Promote private sector growth • Social equity and sustainability	• Retirement of a part of government's short-term liabilities to domestic private sector creditors • Establishment of Business Ventures Development Corporation under Cook Islands Development Bank (CIDB) • Equity injection in CIDB • Given the outstanding government arrears and other external debt totaling NZ$200 million, the loan size of NZ$7.2 million would not have bridged the gap (Knapman and Saldanha, 1999, p. 34).	• No detailed aggregation documented. The loan size was on the basis of "the significance of the policy changes and economic restructuring being pursued and the historical levels of Bank lending to the Cook Islands." (RRP, para. 75) Supporting study: • 1995 Economic Report served as ESW
RMI: Public Sector Reform Program ($12 million)	• Stabilize government finances in the short run. • Ensure long-term structural stability of government finances. • Create an improved environment for the private sector	• Retirement-in-force (RIF) program ($5.5 million) • Pay off Air Marshall Islands' (AMI) commercial debt ($4 million) • Seed injection to Financial Reserves Trust Fund ($2.5 million) (Knapman and Saldanha 1999, pp. 89–90)	• Based on salaries paid in the civil service and average length of service, and expected number of retrenchments (RRP, para. 69) • Two thirds of AMI's outstanding commercial debt. Supporting study: • 1996 Economic Report served as ESW
FSM: Public Sector Reform Program ($18 million)	• Reduce size and operating costs of civil service • Increase domestic revenue generation • Restructure government operations and public enterprises • Mitigate social and economic impact • Foster development of private sector	• Direct costs of early retirement schemes for the national and 4 state governments ($3 million for the national, $5.3 million for Chuuk, $4.2 million for Pohnpei, $3.5 million for Yap, $2 million for Kosrae)	• No detailed documentation in the RRP but the EMPAT team (ADTA consultants) provided detailed estimates and also developed monitoring schemes for the retirement program Supporting study: • 1996 Economic Report served as ESW.
SAM: Financial Sector Program ($7.5 million)	• Deepen financial markets • Strengthen Central Bank of Samoa (CBS) and enhance its operational autonomy • Strengthen prudential and regulatory framework	• Incremental budgetary cost of issuing CBS bills ($1.9 million over a 3-year period) • Temporary compensation for the	• A loan of $7.5 million is aimed at covering a major share of these costs to the government, with the remaining part coming from other sources, including

APPENDIX 4

Economic Analysis of Policy-Based Operations: Key Dimensions

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
	• Strengthen National Provident Fund (NPF) and Development Bank of Samoa (DBS) • Privatize and corporatize public enterprises and utilities	loss of revenue from elimination of the foreign exchange levies ($1.3 million annually) • Temporary compensation for the loss of revenue from the planned corporatization of the Posts and Telecommunications Department ($5.72 million annually)	revenue from privatization of state-owned enterprises (SOEs). (RRP, paras. 101–104) • Short- to medium-term costs of the reform program were estimated in fiscal and balance-of-payment terms • Incremental cost of issuing CBS bills was calculated as the total incremental interest rate costs associated with interest rate differential
VAN: Comprehensive Reform Program ($20 million)	• Redefine the role of government, and enhance the quality and delivery of its policy, regulatory, and development services • Increase the productivity and growth of the private sector in both urban and rural areas • Support social development of the disadvantaged and rural population	• Restructure and right-size the public sector • Restructure and rehabilitate government-owned financial institutions • Fiscal stabilization (reduce the need for an inflationary domestic financing of budget deficit) • The loan amount ($20 million) was to cover 35%, 40%, and 25% of the above three adjustment costs. (Knapman and Saldanha 1999, p. 152)	• Fiscal outlook covering 1997–2000 and Government funding plan 1998–2000 formed the basis of external financing need for the reform program (RRP, paras. 73–83) Supporting study: • 1997 Economic Report served as ESW.
SOL: Public Sector Reform Program ($25 million)	• Macroeconomic stabilization and fiscal reforms • Public sector management reforms • Public enterprise reforms • Strengthen governance institutions	• No specification documented in the RRP. Ex-post, the loan amount ($25 million) permitted clearance of approximately 63% of government arrears ($23.8 million); the financing of public service retrenchments ($1 million); and incremental costs of hiring staff to implement reforms ($0.2 million). (Knapman and Saldanha 1999. p.131)	• The loan amount is based on the "scope and the costs of the policy reforms, the importance and urgency of the reforms and the state of the public finances of the Borrower." (RRP, para. 69) Supporting study: • 1997 Economic Report served as ESW.

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
NAU: Fiscal and Financial Reform Program ($5 million)	• Fiscal management reform • Improve asset management and enhance returns to the economy • Establish a viable banking system • Improve efficiency and effectiveness of the public sector	• Separation payments (450 public service employees and 250 Nauru Phosphate corporation staff, totaling $2.7 million) • Direct budget support to pay arrears, deferred obligations, and restructured debt payments ($1 million) • Finance specialist inputs to improve public sector and SOE performance ($0.8 million) • Payment of nonwage-related health and education expenditures to improve service delivery ($0.5 million)	Supporting study: • National Reform Program ADTA
TUV: Island Development Program ($4 million)	• Decentralize and enhance regional autonomy • Foster an enabling environment for regional development	• Budgetary provisions to cover annual capital assistance grants to the islands at about the same level as expected from the trust fund when it becomes operational, plus the cost of administrative reorganization and upgrading on the islands • Reorganization of the financial institutions (Development Bank of Tuvalu merging with the National Bank of Tuvalu).	• The size of the ADB loan ($4 million) is based on the assumption that the government and the island communities will match their contribution by $4 million and $0.5 million, respectively, so that the initial capital can generate reasonable returns. (RRP, para. 103-104)
IND: Madhya Pradesh Public Resource Management Program ($250 million)	• Enhance resource allocation to social sectors through focused interventions • Implement public sector reforms including capacity building and institutional strengthening • Promote an enabling environment for private sector participation	• Revenue losses from tax measures ($185 million) • Cost of public enterprise reform including non-personnel outlays public sector undertaking (PSU) reform ($296 million) • Cost of voluntary retirement scheme and social safety net ($120.4 million)	• Estimated financial implications of the reform Program: $601.2 million • Estimations done by Mission based on information provided by the Government of Madhya Pradesh and individual PSUs • Excluded outlays on account of voluntary retirement scheme

APPENDIX 4

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
PAK: Energy Sector Restructuring Program ($350 million)	• Enhancement of governance in the energy sector • Enhancement of the legal and regulatory framework and strengthening of the capacity of the sector regulator • Financial restructuring and privatization of utilities and corporatized entities • Creation of an enabling environment for a competitive electricity market • Enhancement of reform in the natural gas and petroleum subsectors	• Restructuring cost of the energy sector, including the cost to help address the circular debt problem in the power sector and the adjustment cost of the natural gas and petroleum subsectors ($1.6 billion) • Operating costs and other related costs of reform (e.g., labor restructuring cost, cost of restructuring plans) ($105 million)	• Broad estimate of adjustment cost is about $1.71 billion • Restructuring cost estimated by the Government of Pakistan
INO: Industrial Competitiveness and Small and Medium Enterprise (SME) Development Program ($200 million)	• Strengthening competition by establishing an appropriate legal environment for commercial activity, simplifying the regulatory framework, removing barriers to domestic competition and trade, and liberalizing international trade • Facilitating investment and trade by strengthening the policy framework governing domestic investment and foreign direct investment, and improving duty drawback and customs procedures • Rationalizing assistance to SMEs by improving policy coordination and implementation, improving financial intermediation, and strengthening technical and business service support	• Lost revenues from tariff reform ($150 million) • Cost of administrative reforms linked to the computerization and reorganization of customs ($25 million) • Establishment of Commission for Competition Supervision and other administrative reforms ($5 million) • Lost revenues resulting from the simplification of the licensing and approval regime ($470 million) • Elimination of protection in a number of subsectors, including fertilizer distribution, petro-chemicals, and other domestic trade subsectors is expected to impose upfront costs to enterprises in terms of restructuring and retooling needs (These costs are expected to be considerable but are deemed difficult to quantify)	• Total adjustment cost related to the Program was estimated at about $650 million during the Program period • The elimination of protection in a number of sectors is expected to impose costs to enterprises in terms of restructuring and retooling needs. These costs are expected to be considerable but are difficult to quantify. Supporting study: • Trade and Industry Planning and Strategy Formulation for Repelita VII ADTA

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
VIE: Agriculture Sector Program ($80 million)	• Stimulate competition in the domestic and export marketing of rice and in the importation of fertilizer to reduce marketing margins, improve producers' prices, and reduce the cost of fertilizer • Support equal participation by the private sector and trade liberalization • Establish the legal framework for voluntary cooperatives, and farmers' and traders' associations • Improve the efficiency and profitability of formal rural financial intermediation • Accelerate land tenure reforms, including the allocation of land-use rights to rural households	• Cost of establishing a modern cadastral service and issuance of certificates of land transfer for parcels of land ($90 million during the program period or a total of $360 million over a 12-year period) • Cost of upgrading/ replacing facilities for the storage and processing of agricultural outputs • Cost of restructuring and modernizing the agricultural extension research ($100 million)	• Partial estimate of adjustment costs is about $190 million Supporting studies: • The Program evolved from discussions with the government over a period of 2 years.
VIE: Financial Sector Program ($90 million)	• Establish the essential market infrastructure to facilitate private sector participation in relation to the legal and regulatory framework, the accounting and audit system for banks, information disclosure, and investor protection • Commercialize and modernize domestic banking operations by providing greater autonomy to the state-owned commercial banks, improve risk management practices, and raise capacity for deposit mobilization • Promote competition by leveling the playing field and diversifying the range of financial institutions • Initiate the development of a capital market by promulgating basic securities legislation and establishing a securities agency to regulate and develop the market for securities	• Adoption of new accounting and audit standards that are in close conformity with international standards • Setting up a deposit insurance fund to maintain and build the corpus of the fund to eventually match actuarial estimates of possible claims or losses from insurable risks ($10 million) • Organize a securities agency, a stock exchange and an automated central depository system ($20 million) • Other program components that will cover collateral registration system, credit information system, centralized system, and translation facilities for various legislation, upgrade of accounting and audit systems, including computerization requirements,	• Adjustment costs estimated to be in the range of $265 million Supporting studies: • Development of Small-Scale Rural Credit TA • Commercial Banks Review and Training TA • Financial Markets Development TA • Financial Sector Review TA

APPENDIX 4

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
		training costs, and engagement of consultants ($10 million)	
INO: Power Sector Restructuring Program ($380 million)	• Restructuring of the power sector and creating an enabling environment for a competitive electricity industry market • Establishing competition in the supply of bulk electricity in Java-Bali • Adjusting tariffs to ensure financial viability of the state-owned utility and the newly created subsidiaries during the transition period • Increasing private sector participation • Strengthening the regulatory environment, including protecting the interest of the end-consumers	• Obligations for power purchase • Budgetary support to compensate for the phased tariff increases • Cost of debt restructuring and expenditure related to staff reduction associated with organizational restructuring	• Adjustment costs were based on reasonable macro-economic assumptions and were expected to be between $1 billion–$1.5 billion annually in 1999 and 2000, and about $4 billion in 2001 • These costs were expected to be met by direct budgetary outlays, loans from multilateral and bilateral sources, and part of the proceeds from the sale of the assets of the state power utility in Java-Bali
IND: Gujarat Power Sector Development Program ($150 million)	• Establish independent tariff setting and regulation • Rationalize the imposition of tariffs and duties in the sector to maintain equity among consumer categories • Introduce competition and commercialization • Improve conservation of water and electricity	• Rationalization of electricity duty is expected to cause a revenue loss of about $33 million each year in the next 5 years for a total of $165 million • Long-term loans to Gujarat Electricity Board (GEB) to retire expensive commercial debt and adjustment of independent power producer prices will be about $43 million • Payment of arrears of dues of municipalities and other local bodies until FY2000 was estimated to cost about $15 million. It was expected that in FY2001, an additional $5 million may be required • About 700,000 consumer meters will be procured and installed over the next 3 years which will cost around $7 million	• The total cost of adjustment to be incurred by the state government over the reform period is estimated at $235 million • It is felt that the program loan of $150 million is adequate and justified by the state government on account of the reforms and the political costs it will incur during implementation Supporting studies: • Preparation of a power system master plan Preparation of a framework for electricity tariffs • Review of electricity legislation and regulations • Financial support to GEB for the formation of two independent distribution profit centers • Solicitation for private sector implementation of the Chhara Project

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
MON: Agriculture Sector Development Program ($7 million)	• Reduce price and other distortions to improve resource allocation and efficiency • Promote competitive markets for agricultural inputs, outputs, and processed goods • Ensure delivery of financial services and provide improved access to credit for the rural population • Rationalize tax incentives to promote investment in rural areas • Improve productivity and sustainability in extensive livestock production • Strengthen agricultural research and extension to support private sector agriculture • Mitigate risks in agriculture and ensure food security, income, and employment for vulnerable groups	• Preparation and implementation of the plan to achieve operational and financial autonomy for Biokombinat ($0.4 million) • Implementation of the Cooperative Law and Cooperative Development Program ($0.3 million annually) • Implementation of an action plan to promote investment in disadvantaged rural areas ($0.4 million annually) • Control of animal diseases that are public health hazards ($0.3 million annually) • Establishment and operation of a licensing system for veterinarians supervising meat hygiene and production ($0.1 million annually) • Operations of the secretariat to maintain the register for veterinarians and paraveterinarians ($5,000 annually) • Implementation of pilot programs for improved pasture management ($0.4 million annually) • Operation of the Science and Technology Council ($0.4 million annually) • Implementation of a medium-term plan for extension ($0.4 million annually) • Implementation of the policy on risk management is also deemed to involve significant costs although these were not indicated in the RRP	• Adjustment costs are estimated at $8.0 million over the next 4 years • Increased costs of the structural reforms will be partly offset by reduced costs, or increased revenues, induced by the reforms from: (i) the more effective use of financial resources resulting from the sale of commodity aid; (ii) use of competitive bidding procedures for procurement and sales by government agencies; and (iii) proceeds from the privatization of the remaining crop farms Supporting study: • Agriculture Sector Development Program ADTA

continued...

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
MON: Financial Sector Program ($35 million)	• Strengthen the legal and regulatory framework for banking operations by improving supervision and the regulation of nonbank financial institutions; improving the financial information on banks, improving the legal basis for debt recovery; and facilitating the enforcement of financial sector-related laws • Strengthen financial intermediaries by facilitating the operational and financial restructuring of banks • Improve the efficiency of the financial intermediation process by reducing government involvement in banking operations, and by establishing market-determined interest rates	• There will be costs to enterprises, which will lose up to 10% of their deposits.	Supporting studies: • Institutional Strengthening of the Financial Sector TA • Institutional Strengthening of Agricultural Banking Services • Strengthening of the Commercial Banking System • Strengthening of Financial Intermediaries • Development of Procedures for the Reconstruction and Liquidation of Insolvent Banks • Development of Bank Restructuring Strategies
PHI: Grains Sector Development Program ($100 million)	• Liberalize and promote more cost-effective grains pricing and import policies • Improve administration of grain buffer stocks • Restructure National Food Authority from a grains marketing monopoly into a public regulatory agency and separate private sector marketing corporations • Promote a more targeted and effective food subsidy program for the poor • Improve the coordination, organizational structure, research and development, grains and seed production, and marketing	• Government revenue losses from the elimination of tariffs on agricultural and agriculture-related inputs, have been officially estimated at about $25 million annually. • Revenue losses from the lowering of tariffs on grains, primarily corn and corn substitutes, are estimated at $10 million–$20 million annually, depending on the level of imports • Targeted food subsidy and/or food-for-work program will incur a minimum annual cost of $50 million starting in the third year, but may double or triple in cost, depending on the percentage of poor families targeted.	Supporting study: • Study on Food Crop Policies ADTA

Appendix 4 (cont'd.)

Loan	Main Policy Measures	Adjustment Costs Identified	Analysis Used for Cost Estimation
		• Compensation packages for affected staff range from $20 million–$60 million. • Increased annual budgetary allocations for agricultural infrastructure, research, extension, and other services supported by the Grains Sector Development Program will require $125 million–$250 million annually for the next 4 years.	
CAM: Financial Sector Program Loan ($30 million - program loan cluster of about $10 million per program loan)	• Enhancing banking intermediation and public confidence by establishing and strengthening banking supervision, developing key information infrastructure and safety net, and building capacity in both public and private sectors by reinforcing capacity building institutions • Establishing legal and regulatory framework for insurance development by institutionalizing a supervisory system and prudential regulations; fostering private sector development in the insurance business; and developing compulsory insurance • Laying the foundation for the development of inter-bank and money markets through public-private sector partnership and establishing a basic legal framework • Developing financial market infrastructure by establishing common accounting standards and enforcement mechanisms and promulgating relevant laws	• Adoption and enforcement of international accounting and audit standards ($37 million) • Establishment of banking sector infrastructure and safety net including public registry of secured transactions, credit information exchange arrangement, and deposit insurance system ($18 million) • Strengthening bank prudential regulations and bank restructuring ($16 million) • Development of inter-bank and money markets and laying the foundation for the capital market development ($7 million) • Development of legal and regulatory framework for the financial sector ($6 million)	• The costs of structural reforms are estimated at $80 million–$90 million. Supporting study: • Preparing for the Financial Sector Development Program ADTA

APPENDIX 4

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