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A political economy perspective of social cost-benefit analysis: A case study of rural electrification policy in Fiji

Lowry, Cynthia Ann, Ph.D.
University of Hawaii, 1990

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A POLITICAL ECONOMY PERSPECTIVE OF SOCIAL COST-BENEFIT ANALYSIS:
A CASE STUDY OF RURAL ELECTRIFICATION POLICY IN FIJI

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN

POLITICAL SCIENCE

MAY 1990

By

Cynthia Lowry

Dissertation Committee:

Deane Neubauer, Chairperson
Robert Stauffer
Neal Milner
Peter Manicus
Kirk R. Smith
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by
Cynthia Lowry
This dissertation is dedicated
to my husband, Dr. Pat, who
will always be my better half.
ACKNOWLEDGMENTS

Just as with any project that takes nine years to complete, there have been many people along the way who have helped out in one way or another. And there are a few, without whose assistance the project would not have been possible. In the latter category belong my husband and my committee members.

My husband, Pat (the Great), is at least as glad as I am to have the project finally completed, after so many setbacks. His many roles included chief financier of the project, boat captain, and chief babysitter for weeks on end. He also had the opportunity to serve as a project physician on numerous occasions. My medical calendar for 1983-1989 reads something like this: filariasis, boils, and head lice during 1983-84 (fieldwork period), pregnancy and childbirth during 1985-86, a broken foot in 1986, a ruptured disc and lengthy back surgery in 1987-88, and eosinophilic meningitis (angiostrongylus, or small parasites in the cerebellum) in 1989. Many physicians made significant contributions along the way, and those I would like to give honorable mention to are Pat Lowry, Jim Marzolf, Ralph Cloward, Joe Humphrey, Lambert and Blase Lee Loy, Roy Nakayama, Ali Bairos, James Pierce, Sharon Lawler, Gila Jacobsen, Rosemary Mitchell, Rita Vinten, and the staff physicians of the Colonial War Memorial Hospital in Suva.

With one chapter left to write, the highlight of my medical education was to learn in April, 1989, that worms were digging holes in my cerebellum, rather than my cerebrum (and hence the balance, vision, and speech problems). By October I was functioning normally enough
to check into the Hale Kuahine dormitory at the East-West Center again, and to resume the writing process. On December 8, 1989, I successfully defended my dissertation, nine years after applying to the Political Science Department of the University of Hawaii and the Resource Systems Institute of the East-West Center, seven years after completing my comprehensive written exams, and eight months after undergoing brain scans.

Other brainy doctors who offered invaluable assistance, as well as steady encouragement throughout the entire dissertation project, are my six dear committee members. As chairman (as well the Dean of social sciences for much of that period), Deane Neubauer did an outstanding job. To Deane I owe the fact that the academic part (minus all of the distractions) went as smoothly as it did. As the energy project leader at EWC/RSI, Kirk Smith played a key role on my master's thesis committee as well, made arrangements for my fieldwork in Fiji, taught me a lot about honesty and professionalism, and for ten years has continued to amaze me with the breadth and depth of his thinking, as well as with his many accomplishments in life. Bob Stauffer provided rapid and comprehensive feedback at all times, and inspired me to keep my desk a bit tidier, and my thinking as critical as possible. Neal Milner was most active in making the defense a lively session. Harry Friedman waded through the 2,000 pages that made the final 200 pages possible, but unfortunately was on sabbatical when it came time for signatures. Deane suggested that the comments of Peter Manicus would be very helpful during my final writing phase, and indeed they were. Thank you, Peter. A friend who attended my defense, where
the dress code was "informal," reminded me of the fact that all six of you are "real" people, as well as professors.

There were computer disc problems along the way, as well as invertebral disc and retinal disc problems. After waiting for one year for my books and papers to show up in Fiji, as well as the rest of our personal effects shipped from Hawaii in 1985, it was disheartening to find all 300 of my program and file discs permanently damaged by mold. Several very talented computer fans helped me to "pick up the pieces again" after the various mishaps, and they include Klaus Rebensburg, Bud Hershfield, David Cousins, Herb Wade, Nick at Kelton's IBM department, and Sean Sherman. Kesa Tauilagi cheerfully, calmly, and competently helped me to input data again after each catastrophe, and in the process launched her own computer career.

It would probably be fair to say of my computer, though, that without it I would have been able to finish several years earlier.

The two essential parts of the fieldwork experience were the time spent in rural villages, as well as the time spent in centrally-located government offices. Many people offered invaluable assistance during this period, but their names are generally too numerous to list here, or too difficult for me to remember. The Bale family gave us a home until we got settled, and introduced us to the Nasaqalau gang. Laveti Ma'afu made sure that I got a healthy dose of village life, and Fijian language and culture, right from the start. After completing the rural component of the study, I labelled relevant files the "Rough Seas Survey." They do not tell, however, of the adventure aspects that my husband and I, as well as our brave crew members, Willis and Suellen Eschenbach, and Bela, Vuni and Peni of Nasaqalau
village, Lakeba, have never written down, and will never forget. The helpfulness and generosity of people in the villages was generally fabulous, and I hope that the onslaught of modernization does not dilute these virtues beyond recognition at some time in the future. Many upper-level government officials were helpful and generous with their time, as well. I would like to give special thanks for the assistance rendered by the Prime Minister (and Tui Nayu), Ratu Sir Kamisese K. T. Mara, Joy Perks, Dr. Salato, Dr. Lasaqa, the late James Makasiale, Filipe Bole, Nelson Delailomaloma, Jone Naisara, and Lai Qarase. I am also indebted to Suliana and Siwa Siwatibau, Navi Naisoro, Nemani Buresova, Jone Koroivuki, Te'o Fairbairn, Mark Sturton, Daryl Tarte, Len Usher, Peter Johnston, Herb Wade, Richard Haist, Jan Abramski, Dennis Blackett, John Morrison, Bob Lloyd, Randy Thaman, Sandra Tarte, Aselea Ravuvu, Sitiveni Halapua, and Iosefa Maiava, all of whose work on behalf of Fiji and the small Pacific island nations I continue to admire, even if at a distance. Others who encouraged me along the way include Manny Voulgaropoulos, Bill Boyer, Sol Jaeckel, Mechai Viravaidya, Katherine Elliott, Iqbal Shah, Pepe Eusebio, John Bardach, Mike Santerre, Deepak Bajracharya, Dick Morse, Jamuna Ramakrishna, Tom Scanlon, Ken Newcombe, Lee Shipper, Cheryl Payer, Peter Hayes, Kaye Bowman, Marcia Gowen, Fred Hitzhusen, Charles Feinstein, Fred Riggs, Luciano Minerbi, Mike Shapiro, Johan Galtung, Joe and Margaret Chung, Pam Pryor, Mike Hamnett, Marcelino Actouka, Jan Crocker, Deacon Ritterbush, Günther Kiessling, Ross Brodie, Soane Puamau, Sigani Puamau, and Captain Mickey Joy.

And last, but not least, I want to thank my family and friends who have provided such a solid support base for such a long time. My
husband, Pat, and children, Sadie Kinohinani and Patrick TLC, have fortunately managed to survive the sometimes long spells when Mom was preoccupied with her work. My parents, Jo and Charles Feeser, not only helped me to get to first base, during my formative years when academic work was always encouraged, but also to get to home base, as they meticulously proofread every page of this manuscript. Also helping me to get to home base have been Freda Hellinger, and Mary and Paddy O'Sullivan. Freda, my typist, is a 40-year veteran of dissertation clean-ups, and is dear to my committee, as well as to me. The O'Sullivans, my final proofreaders, will hopefully need less time to complete their own family dissertation project than the Lowrys have needed!

Important to the Lowry family are many other families that have been on Cindy and Pat's support team during the past decade (if not earlier as well). These families (and extended family members) include the Feesers, the Cousins, the Currents, the Milwaukee Lowrys, the Lewis's, the Sandersons, the Hershfields, the Goettsches, the Rebensburgs, the Wabitsches, the Bairos's, the Bajracharyas, the Cramers, the Lee Loys, the Marzolfs, the Humphreys, the Ringwoods, the Choys, the Williams's, the Costs, the Chinns, the Hacketts, Paul Woomer, the Walkers, the Tilleys, the Josephs, Marion Everson, Electa Sam, Oy Pitaksuntipan, Tom O'Roarke, Dan Riley, Leon Vaughn, Doug Gilson, the D'Angnes's, the Cheney-O'Byrnes, the Diamond-Smiths, Kilali Alailima, Noah Baygell, Pauline Chinn, Dorothy Izumi, Ephraim Apelis, the Kiesslings, the Lindborgs, the Dillerys, the Paupes, the Nishiharas, the Kuhns, the Schills, the Woodses, the Petersons, the Bertolets,
the Wylers, the Howards, the Bays, the Hills, the Sofields, and Bubu Stella's gang. Others deserving honorable mention are Nancy McGuckin-Smith, Suzzi Seagull, and Debi Bairos, who, together with my sister, Nan Cousins, have been outstanding in their capacity to care for others, even when off-duty as nurses.
ABSTRACT

In this case study of the rural electrification public policy process in Fiji, conventional and alternative Social Cost-Benefit Analysis (SCBA) models are analyzed in terms of: (1) epistemology; (2) theories of development and economic growth; (3) SCBA as a technique and an activity of national development planners, economists, and politicians, and of development bank (Asian Development Bank, World Bank, and International Monetary Fund) representatives; and (4) the local context (Fijian villages in Eastern Division) of policy advocated by ADB consultants performing conventional RE SCBA.

Theoretical foundations of the conventional SCBA model include: (1) neoclassical economics/Rostowian model; (2) development economics/methodological debate; (3) welfare economics/locus of truth in mathematical syllogisms; and (4) public sector project appraisal/compensation principle. At each level the theory is problematic.

The bank adviser/national planner interface is probed both as a perspective of technique/methodology, and as development activity based on theory. Real world consequences are examined.

Epistemologically, hermeneutical/interpretive and empirical methods of inquiry are used. Metapolitics, focusing on interest articulation, underpins the definition of political economy employed in the study. A basic contradiction/dilemma is exposed: the units of analysis of the model (individual) and its target (social unit) differ, precluding a good reality/theory fit. Resulting policies are inadequate for the achievement of long-term goals (e.g., increased national sovereignty
and improved human welfare). The evolution of this dilemma, and the economic and political interests that its continued existence serves, are discussed.

The need to acknowledge this contradiction drives the alternative construct presented as the conclusion to this study. Mathematized aggregation techniques, focusing on village/social unit preferences, would require greater use of bottom-up/decentralized planning strategies. The benefits are revised downwards, and the costs upwards (including human resource development), of the conventional analysis. Recasting actors, and their respective roles on the development stage, would be required in future (rural electrification) SCBA and development planning activities designed to improve the theory/reality fit.

The study is of relevance to development work in other independent, developing nations with isolated and open economies, and emerging external indebtedness problems.
# TABLE OF CONTENTS

ACKNOWLEDGMENTS .......................................................... v

ABSTRACT ........................................................................ xi

LIST OF TABLES ................................................................. xvi

LIST OF FIGURES ................................................................ xvii

LIST OF ACRONYMS ............................................................. xviii

CHAPTER I THE PROBLEM: RURAL ELECTRIFICATION PROJECT APPRAISAL IN FIJI ........................................ 1

Enter the Young Nation of Fiji: The Independence Agenda Revisited .......... 1
Selection of Case Study ................................................................ 4
Development Sector--Energy ..................................................... 5
Country--Fiji ........................................................................ 5
Target Population--Eastern Division ........................................... 8
Social Cost-Benefit Analysis--The Role of International and Regional Lending Agencies ....................................................... 8
Notes to Chapter I .................................................................. 11

CHAPTER II THE CONSTRUCT: AN ALTERNATIVE SOCIAL COST- BENEFIT ANALYSIS ............................................. 12

Introduction: Theoretical and Real World Concerns Prompting the Construct of an Alternative SCBA .................................... 12
An Outline of the Construct: Four Nested Levels of Analysis ................. 16
Notes to Chapter II ................................................................ 20

CHAPTER III VILLAGE LEVEL ANALYSIS ..................................... 22

Introduction ......................................................................... 22
Target Population .................................................................. 24
Village Level Goals--The Level at Which Life is Lived ......................... 24
Location ............................................................................. 28
End-Use Priority ................................................................. 28
Welfare ............................................................................... 31
Productivity ........................................................................ 31
Mixed ............................................................................... 32
Other ................................................................................ 32
## CHAPTER IV

### NATIONAL LEVEL ANALYSIS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>49</td>
</tr>
<tr>
<td>Public Policy Process</td>
<td>54</td>
</tr>
<tr>
<td>Program Planning</td>
<td>56</td>
</tr>
<tr>
<td>Project Appraisal</td>
<td>56</td>
</tr>
<tr>
<td>Project Rejection/Selection/Finance</td>
<td>56</td>
</tr>
<tr>
<td>Project Implementation</td>
<td>57</td>
</tr>
<tr>
<td>Project Sustainment</td>
<td>57</td>
</tr>
<tr>
<td>Program Evaluation</td>
<td>57</td>
</tr>
<tr>
<td>Program Refinement--Starting the Cycle Over Again</td>
<td>57</td>
</tr>
<tr>
<td>History of Development Planning in Fiji</td>
<td>57</td>
</tr>
<tr>
<td>Energy Sector Public Investments</td>
<td>62</td>
</tr>
<tr>
<td>Bureaucracy Relevant to the Public Policy Process in the Energy Sector</td>
<td>70</td>
</tr>
<tr>
<td>Public Investment, Income Growth, and External Indebtedness Patterns</td>
<td>85</td>
</tr>
<tr>
<td>History of Use of Social Cost-Benefit Analysis (SCBA) as a Policy Analysis</td>
<td>96</td>
</tr>
<tr>
<td>Developed Countries (DCs)</td>
<td>96</td>
</tr>
<tr>
<td>Less Developed Countries (LDCs)</td>
<td>97</td>
</tr>
<tr>
<td>Actors on the Development Bank Stage</td>
<td>100</td>
</tr>
<tr>
<td>Activity of SCBA in the Fiji Rural Electrification Case Study</td>
<td>105</td>
</tr>
<tr>
<td>Notes to Chapter IV</td>
<td>110</td>
</tr>
</tbody>
</table>

## CHAPTER V

### DEVELOPMENT THEORY LEVEL ANALYSIS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>126</td>
</tr>
<tr>
<td>Paradigm Shift</td>
<td>126</td>
</tr>
<tr>
<td>Development Models</td>
<td>133</td>
</tr>
<tr>
<td>Rostowian Model</td>
<td>133</td>
</tr>
<tr>
<td>Other Models</td>
<td>134</td>
</tr>
<tr>
<td>Chapter VI: Dynamics of Alternative SCBA Construct</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Introduction</td>
<td>165</td>
</tr>
<tr>
<td>The View from Mt. Meta</td>
<td>168</td>
</tr>
<tr>
<td>A View to Mt. Development</td>
<td>170</td>
</tr>
<tr>
<td>A View to Mt. National</td>
<td>170</td>
</tr>
<tr>
<td>A View to Mt. Village</td>
<td>171</td>
</tr>
<tr>
<td>The View from Mt. Development</td>
<td>171</td>
</tr>
<tr>
<td>A View to Mt. National</td>
<td>172</td>
</tr>
<tr>
<td>A View to Mt. Village</td>
<td>178</td>
</tr>
<tr>
<td>The View from Mt. National</td>
<td>179</td>
</tr>
<tr>
<td>A View to Mt. Meta</td>
<td>179</td>
</tr>
<tr>
<td>A View to Mt. Development</td>
<td>179</td>
</tr>
<tr>
<td>A View to Mt. Village</td>
<td>182</td>
</tr>
<tr>
<td>Inside the SCBA Pyramid</td>
<td>186</td>
</tr>
<tr>
<td>The View from Mt. Village</td>
<td>189</td>
</tr>
<tr>
<td>Conclusion</td>
<td>190</td>
</tr>
<tr>
<td>Notes to Chapter VI</td>
<td>192</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter VII: Conclusion</th>
<th>Page</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Bibliography</th>
<th>Page</th>
</tr>
</thead>
</table>


### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Methodological Debate in (Development) Economics</td>
<td>141</td>
</tr>
<tr>
<td>5.2</td>
<td>Problematical Foundations of Modern Welfare Economics</td>
<td>151</td>
</tr>
<tr>
<td>6.1</td>
<td>Methodological Problem Areas of SCBA Technique Used by ADB Rural Electrification Consultants</td>
<td>187</td>
</tr>
<tr>
<td>Figures</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>1.1</td>
<td>Map of Fiji in the Pacific Basin</td>
<td>2</td>
</tr>
<tr>
<td>1.2</td>
<td>Map of Eastern Division of Fiji</td>
<td>9</td>
</tr>
<tr>
<td>2.1</td>
<td>Alternative SCBA: Levels of Analysis</td>
<td>17</td>
</tr>
<tr>
<td>3.1</td>
<td>Village Level Analysis: The Local Context of SCBA</td>
<td>23</td>
</tr>
<tr>
<td>4.1</td>
<td>National Level Analysis: Activity (and Technique) of SCBA</td>
<td>50</td>
</tr>
<tr>
<td>4.2</td>
<td>Project Appraisal (SCBA) Role in Public Policy Cycle</td>
<td>51</td>
</tr>
<tr>
<td>4.3</td>
<td>Fiji Government Ministries and Other Public Bodies Relevant to Rural Electrification Public Policy Process</td>
<td>71</td>
</tr>
<tr>
<td>4.4</td>
<td>Fiji Government Ministries and Agencies Relevant to Activity of RE SCBA</td>
<td>80</td>
</tr>
<tr>
<td>4.5</td>
<td>Fiji Economic Indicators</td>
<td>86</td>
</tr>
<tr>
<td>4.6</td>
<td>External Debt of Fiji</td>
<td>88</td>
</tr>
<tr>
<td>4.7</td>
<td>Patterns of Change of Economic Indicators and External Debt of Fiji</td>
<td>89</td>
</tr>
<tr>
<td>4.8</td>
<td>Principal Ratios of Fiji's External Indebtedness: Total External Debt (EDT) and Disbursed and Outstanding Debt (DOD)</td>
<td>91</td>
</tr>
<tr>
<td>4.9</td>
<td>Principal Ratios of Fiji's External Indebtedness: Total Public Debt Service (TDS) and Total Public Interest Payments (INT)</td>
<td>92</td>
</tr>
<tr>
<td>5.1</td>
<td>Development Theory Analysis: Theory of SCBA</td>
<td>127</td>
</tr>
<tr>
<td>5.2</td>
<td>Social Science Method of Inquiry: Meta-Theory of SCBA</td>
<td>156</td>
</tr>
<tr>
<td>6.1</td>
<td>Alternative Construct of SCBA: Dynamic Aspects</td>
<td>166</td>
</tr>
<tr>
<td>6.2</td>
<td>SCBA: Points of Perspective</td>
<td>167</td>
</tr>
</tbody>
</table>
# LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>ACRONYM</th>
<th>NON-ABBREVIATED FORM (Associated Agency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Alternating Current</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>BCC</td>
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</tr>
<tr>
<td>BOMAS</td>
<td>Business Opportunities Management Advisory Services (MFA)</td>
</tr>
<tr>
<td>BOS</td>
<td>Bureau of Statistics (MOF)</td>
</tr>
<tr>
<td>CASP</td>
<td>Center for Applied Studies in the Pacific (USP)</td>
</tr>
<tr>
<td>CATD</td>
<td>Center for Appropriate Technology and Development</td>
</tr>
<tr>
<td>CBA</td>
<td>Cost-Benefit Analysis</td>
</tr>
<tr>
<td>CDC</td>
<td>Commonwealth Development Corporation</td>
</tr>
<tr>
<td>CFF</td>
<td>Compensatory Financing Facility (IMF)</td>
</tr>
<tr>
<td>CMA</td>
<td>Central Monetary Authority</td>
</tr>
<tr>
<td>COMPRAN</td>
<td>Computerized Project Analysis</td>
</tr>
<tr>
<td>CORECT</td>
<td>Committee on Renewable Energy Commerce and Trade</td>
</tr>
<tr>
<td>CPD</td>
<td>Central Planning Office (MEPD)</td>
</tr>
<tr>
<td>DC</td>
<td>Developed Country</td>
</tr>
<tr>
<td>DCM</td>
<td>Developing Member Country (ADB)</td>
</tr>
<tr>
<td>DOD</td>
<td>Long-term Public and Publicly Guaranteed Debt</td>
</tr>
<tr>
<td>DOE</td>
<td>Department of Energy (MEMR)</td>
</tr>
<tr>
<td>DP</td>
<td>Development Plan</td>
</tr>
<tr>
<td>DSC</td>
<td>Development Sub-Committee</td>
</tr>
<tr>
<td>EA</td>
<td>Economic Analysis</td>
</tr>
<tr>
<td>EDI</td>
<td>Economic Development Institute (World Bank)</td>
</tr>
<tr>
<td>EDT</td>
<td>Total External Debt</td>
</tr>
<tr>
<td>EEC</td>
<td>European Economic Community</td>
</tr>
<tr>
<td>EIRR</td>
<td>Economic Internal Rate of Return</td>
</tr>
<tr>
<td>EPRI</td>
<td>Electric Power Research Institute</td>
</tr>
<tr>
<td>ESA</td>
<td>Energy Sector Assessment (IBRD)</td>
</tr>
<tr>
<td>ESCAP</td>
<td>(United Nations) Economic and Social Commission for Asia and the Pacific</td>
</tr>
<tr>
<td>EWC</td>
<td>East-West Center</td>
</tr>
<tr>
<td>FA</td>
<td>Fijian Administration (MFA and MRD)</td>
</tr>
<tr>
<td>FA</td>
<td>Financial Analysis</td>
</tr>
<tr>
<td>FAB</td>
<td>Fijian Affairs Board (MFA)</td>
</tr>
<tr>
<td>FEA</td>
<td>Fiji Electricity Authority (DOE)</td>
</tr>
<tr>
<td>FIRR</td>
<td>Financial Internal Rate of Return</td>
</tr>
<tr>
<td>FLERT</td>
<td>Fuel-Linked Energy Resources and Tasks</td>
</tr>
<tr>
<td>FRB</td>
<td>Fiji Reserve Bank</td>
</tr>
<tr>
<td>FX</td>
<td>Foreign Exchange</td>
</tr>
<tr>
<td>GCC</td>
<td>Great Council of Churches (MFA)</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GNP</td>
<td>Gross National Product</td>
</tr>
<tr>
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<td>Government of Fiji</td>
</tr>
<tr>
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<td>NON-ABBREVIATED FORM (Associated Agency)</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>GTZ</td>
<td>Deutsche Gesellschaft für Technische Zusammenarbeit (W. German Development Agency)</td>
</tr>
<tr>
<td>HIES</td>
<td>Household and Income Expenditure Survey (BOS)</td>
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<tr>
<td>HSF</td>
<td>Hans Seidel Foundation (CATD)</td>
</tr>
<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Association (World Bank)</td>
</tr>
<tr>
<td>IFC</td>
<td>International Finance Corporation (World Bank)</td>
</tr>
<tr>
<td>ILO</td>
<td>(United Nations) International Labour Organisation</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>INR</td>
<td>Institute for Natural Resources (USP)</td>
</tr>
<tr>
<td>INT</td>
<td>Total Public Interest Payments</td>
</tr>
<tr>
<td>IPS</td>
<td>Institute of Pacific Studies (USP)</td>
</tr>
<tr>
<td>LDC</td>
<td>Less Developed Country</td>
</tr>
<tr>
<td>MCTW</td>
<td>Ministry for Communications, Transport and Works</td>
</tr>
<tr>
<td>ME</td>
<td>Ministry for Education</td>
</tr>
<tr>
<td>MEMR</td>
<td>Ministry for Energy and Mineral Resources</td>
</tr>
<tr>
<td>MEPD</td>
<td>Ministry for Economic Planning and Development</td>
</tr>
<tr>
<td>MESC</td>
<td>Macro Economic Sub-Committee</td>
</tr>
<tr>
<td>MFA</td>
<td>Ministry for Fijian Affairs</td>
</tr>
<tr>
<td>MFARD</td>
<td>Ministry for Fijian Affairs and Rural Development</td>
</tr>
<tr>
<td>MHSW</td>
<td>Ministry of Health and Social Welfare</td>
</tr>
<tr>
<td>MOC</td>
<td>Ministry of Co-operatives</td>
</tr>
<tr>
<td>MOF</td>
<td>Ministry of Finance</td>
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<tr>
<td>MPI</td>
<td>Ministry for Primary Industries</td>
</tr>
<tr>
<td>MPU</td>
<td>Macroeconomic Planning Unit (CPO)</td>
</tr>
<tr>
<td>MRD</td>
<td>Ministry for Rural Development</td>
</tr>
<tr>
<td>NIC</td>
<td>Newly Industrialized Country</td>
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<td>Native Land and Fisheries Commission (MFA)</td>
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<td>NLTB</td>
<td>Native Land Trust Board (NLTB)</td>
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<td>Public Debt Owed to Official Creditors</td>
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<tr>
<td>OCR</td>
<td>Ordinary Capital Resources (ADB)</td>
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<tr>
<td>OPM</td>
<td>Office of the Prime Minister</td>
</tr>
<tr>
<td>OTEC</td>
<td>Ocean Thermal Electricity Conversion</td>
</tr>
<tr>
<td>PA</td>
<td>Project Appraisal</td>
</tr>
<tr>
<td>PEDP</td>
<td>(United Nations) Pacific Energy Development Program</td>
</tr>
<tr>
<td>PICHTR</td>
<td>Pacific International Center for High Technology Research</td>
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<td>PIDP</td>
<td>Pacific Islands Development Program (EWC)</td>
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<td>Public Policy Process</td>
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<td>PSC</td>
<td>Public Service Commission</td>
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<td>PVC</td>
<td>Photovoltaic Cell</td>
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<td>PWD</td>
<td>Public Works Department (MCTW)</td>
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<td>RE</td>
<td>Rural Electrification</td>
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<td>RGC</td>
<td>Rural Growth Centre</td>
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<td>RPU</td>
<td>Regional Planning Unit (CPO)</td>
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<td>RSI</td>
<td>Resource Systems Institute (EWC)</td>
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<td>SAL</td>
<td>Structural Adjustment Loan (IBRD)</td>
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<td>SCBA</td>
<td>Social Cost-Benefit Analysis (SCBA)</td>
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<td>SCF</td>
<td>Standard Conversion Factor</td>
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<td>SER</td>
<td>Shadow Exchange Rate</td>
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<tr>
<td>ACRONYM</td>
<td>NON-ABBREVIATED form (Associated Agency)</td>
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<td>-----------------------------------------</td>
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<tr>
<td>SPDMC</td>
<td>South Pacific Developing Member Country (ADB)</td>
</tr>
<tr>
<td>SPEC</td>
<td>South Pacific Bureau for Economic Co-operation</td>
</tr>
<tr>
<td>SPU</td>
<td>Sectoral Planning Unit (CPO)</td>
</tr>
<tr>
<td>TA</td>
<td>Technical Assistance</td>
</tr>
<tr>
<td>TATA</td>
<td>Name of a consulting firm in Bombay, India</td>
</tr>
<tr>
<td>TDS</td>
<td>Total Public Debt Service</td>
</tr>
<tr>
<td>TOR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Program</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Economic, Social and Cultural Organization</td>
</tr>
<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>USP</td>
<td>University of the South Pacific</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank (IBRD)</td>
</tr>
<tr>
<td>XGS</td>
<td>Exports of Goods and Services</td>
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CHAPTER I
THE PROBLEM:
RURAL ELECTRIFICATION PROJECT APPRAISAL IN FIJI

Enter the Young Nation of Fiji:
The Independence Agenda Revisited

In 1970 Fiji (see Figure 1.1) obtained independence from the British and was optimistic that its plans for modernization and accelerated economic growth would usher in a new era of prosperity and control over its own destiny. The formulas for obtaining this transformation were based on development models borrowed from the developed countries. These formulas were advocated by international lending agencies, who offered advice and loans to those who followed the conventional development models.

In Fiji's case, the transfer of power from the colonizers to the citizens of the new nation went smoothly. A Constitution was worked out that promised to safeguard the interests of the indigenous Fijians in retaining control over their communally-owned land, while sharing political power between the major ethnic groups. Fijians held many of the top positions in government until the elections in 1987, but significantly lagged behind the other ethnic groups in terms of economic power. The Indians, an immigrant population which had grown slightly larger than the Fijian population by independence, retained their stronghold over the commercial sector. The expatriates that stayed on after independence, or later arrived as "expert"
Figure 1.1. Map of Fiji in the Pacific Basin
advisors on development strategies or as managers in commercial enterprises, wielded some economic power but little political power, due to the relatively small size of their population.

Development plans, which charted the path toward economic growth and prosperity of the young nation, discussed strategies to increase national income on a sectoral basis. These documents politely omitted the problem of the very inequitable distribution of income along ethnic lines. This omission proved to be a time bomb, which finally exploded in 1987.

Sugar and tourism were the main contributors to achieving high rates of growth in national income during the early 1970s. The engine of growth started to sputter when the first jumps in the price of petroleum hit the world market in 1973. A subsequent deterioration in the balance of payments position prompted proposals for major investments in indigenous energy resources to substitute for petroleum imports.

A major escalation in the level of national indebtedness occurred as a result of these investments, with the debt problem hanging heavy over the development agenda by 1988. The percentage of exports of goods and services needed to service the public debt increased by less than one percent during the first decade of independence, and by 9 percent (from 3 percent to 12 percent) during the 1980-1987 period (see Chapter IV).

The realization of specific growth targets (e.g., Gross National Product, or GNP) in recent development plans has proved to be increasingly difficult. The only development indicator showing steady,
positive growth during the past development decade has been the level
of external indebtedness, while GNP growth has generally been flat
or negative. These unanticipated patterns of growth are further
discussed in Chapter IV. Based on these patterns, it is argued that
something serious has gone wrong in the case of the young nation of
Fiji, despite having carefully followed the dictates of conventional
wisdom. The purpose of this research is to probe the questions of
what has gone wrong, how, and why?

Thus, the transformation which has, in fact, taken place in Fiji
during its relatively brief period of independence is a far cry from
the transformation predicted by the conventional development models.
Given that the power sector has had a significant role in increasing
Fiji's level of external indebtedness, rural electrification policy
is focused on as a perspective in offering a critique of the theories
and methods advocated by external development planners. The appropriateness
and success record of the development model espoused by the lenders
are analyzed in the small island, developing country context. Suggestions
are made to assist the borrowing country's politicians and economists
in finding a solution to the problem of ensuring that the model,
objectives and techniques used in development planning fit well
together, and produce results which improve the welfare of the
indigenous people, particularly those living in rural areas.

Selection of Case Study

This section reviews the rationale for the selection of Rural
Electrification (RE) projects in the Eastern Division of Fiji as a
case study.
Development Sector--Energy

The rationale for selecting the energy sector in general, and rural electrification projects in particular, was based on the following trends in recent decades (see Chapter IV): (1) electricity projects have had a significant, and often leading role in the overall lending portfolios of the international and regional development and lending agencies, such as the World Bank and Asian Development Bank; (2) because of the attractiveness of investment in indigenous energy sources after the oil price hikes of the 1970s, small, developing countries with hydroelectric potential were increasingly interested in loans from the international lending agencies for projects to develop this potential; (3) major loans for electricity projects have often significantly increased the total amount of external indebtedness of small, developing countries; and (4) an explosion in the level of external indebtedness during the (relatively brief) independence era has tended to have a negative impact on the likelihood of achieving the independence goals of increased sovereignty of the nation, and improved welfare of its inhabitants. A study of the project appraisal process in the electricity sector is therefore relevant to the government's interest in minimizing further increases in the level of foreign debt servicing.

Country--Fiji

In order to study the role of SCBA in the public policy process, as performed by external analysts, a developing country with a small enough data base for one researcher to manage (otherwise the outcome of the research could not qualify as a doctoral research) was sought as
a case study. As a grantee of the East-West Center (EWC), an institution specializing in policy research relevant to Asia and the Pacific, I further narrowed the search, in late 1982, to the South Pacific. An alternate choice (based on previous research and language fluency) of the Asian country of Thailand was rejected, on the basis that the data base would be too large to manage. The independent country of Fiji was finally selected, based on these three practical considerations: (1) the government of Fiji had recently been approached by the Asian Development Bank regarding Technical Assistance to perform a SCBA of RE options; (2) a staff member of the Resource Systems Institute of the EWC (also a member of my dissertation committee) had recently attended a regional energy conference in Suva, and used this opportunity to initiate an arrangement with the Director of Energy for me to do research in Fiji; and (3) the Director of the Pacific Islands Development Program at the EWC was a Fijian, and offered to facilitate my application for a research visa.

This analysis is therefore concerned with the small-island, developing country context. Countries in this category typically have the following characteristics: (1) historically they have been colonized by one of the great powers during the period of the Industrial Revolution; (2) their development status, as identified by international development agencies, is either "undeveloped," "underdeveloped," "less developed," or "developing"; (3) they have gained independence relatively recently, i.e., since World War II; (4) they are geographically isolated from other countries; (5) they have small, "open" (i.e., penetrated by external public and private capital in particular, and external actors in general) economies (based on cash income); (6) the
subsistence sector plays a significant role in the economy, but is difficult to quantify; (7) the development planning process is based on the neo-classical economic growth development model, borrowed from the developed countries.¹

A former colony of Great Britain, Fiji gained its independence in 1970, becoming a "developing member country" of the Asian Development Bank in the same year. Fiji is located in the South Pacific region (see Figure 1.1), with a population in the mid-1980s of 0.7 million.² The small size and physical isolation of Fiji has precluded the development of a large industrial sector, resulting in considerable "openness" of the monetized economy to external trade (exporting raw materials in order to pay for imports of manufactured goods) and external private and public investment (especially in the mining and tourism sectors).³ Although subsistence affluence based on communitarian values continues to characterize life in the rural areas, development planning at the national level is based on capitalism and the western neo-classical economic growth model.

On the eve of Fiji's independence, Fisk wrote in the introduction to The Political Economy of Independent Fiji that "Fiji provides a fascinating case study of planning in which the small scale and isolation of the economy enables major issues to be seen in almost laboratory-like clarity."⁴ Although the economy is less "isolated" as a result of 18 years of "openness," Fiji continues to offer a fascinating case study in which to study development planning.
Target Population--Eastern Division

Fiji is divided, administratively, into four divisions: (1) Eastern; (2) Western; (3) Central; and (4) Northern (see Figure 1.2). The Eastern Division was chosen for study because it is more typical of the other neighboring countries in the South Pacific in two important respects: (1) the people tend to live in coastal villages around the perimeters of many small, low-lying, far-flung islands, rather than on a large land mass; and (2) ethnically the population is primarily indigenous to the islands, rather than being descendants of immigrants, as many in the Central, Western, and Northern divisions of Fiji are. At the rural community level in Fiji, the distinction is made between the village and the settlement in government data-collection procedures. This distinction is ethnically-based, with Fijians typically living in villages, and Indians in settlements. This research concentrated on the village context, in view of a larger purpose of this research, i.e., to suggest the relevance of lessons learned from the Fiji case study for the neighboring (independent and developing) countries in the South Pacific region, which are predominantly Melanesian, Polynesian, or Micronesian. Fiji is considered to be the "crossroads of the South Pacific" by western writers (Rotumans dispute this claim,5 further enhancing its value as a "laboratory-like" case study.

Social Cost-Benefit Analysis--The Role of
International and Regional Lending Agencies

International and regional lending agencies have increasingly become involved in the development planning process in Fiji since the
Figure 1.2. Map of Eastern Division of Fiji
advent of the debt problem. Greater involvement in determining macroeconomic policies has been complemented by increased involvement in the microeconomic process of project appraisal.

Increasing involvement at the macroeconomic level by development banks in Third World economies has been the subject of considerable discussion in the development literature in the 1980s. Bankers defend their involvement as necessary to strengthen the economies of individual nations, and to prevent collapse of the international banking system. Debtor nations have expressed concern that the prescriptions of the bankers are often politically difficult to implement on the one hand, and raise national sovereignty issues on the other.

Involvement of the international and regional lending agencies at the project appraisal level in the development planning process of a Third World nation is the focus of this research. Social Cost-Benefit Analysis (SCBA) is analyzed at four levels, the unit of analysis broadening at each step.
NOTES TO CHAPTER I


5. Western authors include John Carter (editor) (1984), Pacific Islands Yearbook, Fifteenth Edition (New York: Pacific Publications); David Stanley (1986), South Pacific Handbook, Third Edition (Chico, California: Moon Publications); and Norman Douglas and Ngaire Douglas (1987), Fiji Handbook: Business and Travel Guide (Sydney: Pacific Publications), pp. 9, 13-17, 35-44, 202-217. A Rotuman writer, Ieli Irave, writes in Rotuma: Split Island (Suva: Institute of Pacific Studies, University of the South Pacific, p. 7) that "Rotuma stands at the cross-roads of the three racial groups within the Pacific--Polynesia, Micronesia and Melanesia--and most probably had some contact with them all long before the first Europeans ever reached the Pacific. The first Rotumans were probably from Micronesia, followed later by Polynesians, and very much later still by some Melanesians, either from the New Hebrides or Fiji, the two nearest islands of Melanesian stock."
CHAPTER II
THE CONSTRUCT: AN ALTERNATIVE SOCIAL COST-BENEFIT ANALYSIS

Introduction: Theoretical and Real World Concerns
Promoting the Construct of an Alternative SCBA

Schumpeter, a renowned economist, suggested that there are two types of vision of (economic) knowledge, (1) "pyramidal" vision, with a succession of narrower and more precise truths being based upon an increasingly mathematized view of the world, and (2) "meadow" vision, in which the (economic) universe is like some vast, undulating meadow that we can approach from many directions, and our knowledge of which depends as much upon our intuition and experience as upon any principles of scientific surveying.¹

Conventional SCBA is based on a pyramidal vision of knowledge. The specific theory of SCBA has its foundations in more general theories of development economics, welfare economics, and project appraisal, i.e., within the economics discipline of the social sciences. In Chapter V these foundations are explored, and the empiricist claims of conventional economic theory are reviewed. The conventional SCBA construct is based on a mathematized structure of equations, leading to the "apex" numbers that are to guide policy makers in decisions to select or reject specific projects. The actual technique used in a concrete situation reflects the theoretical approach to understanding based on a succession of narrower and more precise truths.

The activity of SCBA in the Fiji case study is an example of a practical application of the generalized technique of SCBA, modified
slightly based on particulars of the Fiji context. The SCBA model used by the Asian Development Bank consultants in advising the Government of Fiji on rural electrification policy options is a computerized model. In this model, a series of assumptions and equations are input into the computer, mathematically processed, and based on assumptions in the output section regarding specific decision criteria, projects are then grouped into "select" and "reject" categories. The SCBA consultants then share this "apex" information with government officials, who make the real world decision to select or reject a specific project.

The decision to select a specific project for financing and implementation is based on a generalized empirical notion that "If you do X, then Y occurs." In terms of conventional development theory models, this is tantamount to saying that "If nation A makes investment X in economic development, then GNP (Y) will grow." In terms of the outcome of a specific village project, the implication is that "If investment X in village B is made, then the welfare of village B (Y) will be improved (thus contributing to economic development at the national level)."

In subsequent chapters, doubt is cast on the usefulness of the pyramidal, i.e., empiricist approach to knowledge in the social sciences. The alternative construct of SCBA outlined below is based on Schumpeter's meadow vision of inquiry into truth about social systems. This model of the "knowledge enterprise" is based on hermeneutical principles of inquiry, in which intuition and experience contribute to efforts to seek "truth." The result of a critical and interpretive approach to knowledge, specifically focusing on the need to raise meta-level questions, i.e., those logically anterior to the
kinds of questions that direct empiricist models of inquiry, is necessarily qualitative and broadly-based.

It is argued that a hermeneutical, or interpretive approach to knowledge, focusing specifically on the level of presuppositions, is a useful complement to an empiricist approach. From this perspective it is possible to view conventional SCBA in a more comprehensive manner, integrating concepts about its various facets as a technique, an activity, a theory, and a meta-theoretical perspective that have real world consequences.

This perspective is termed a political economy perspective, for the purposes of this paper, and is based on a view of politics and economics that contrasts markedly with that of conventional economic theory. The narrower definition of political economy assumed within the discipline of economics serves, rather, as a launching point for a broader, and more critical interpretation of political and economic concerns regarding conventional SCBA, as evidenced in the Fiji case study.

An alternative construct of SCBA is proposed in this research, based on an interpretive method of inquiry, and applied to the case of rural electrification policy-making in Fiji. Viewed as knowledge enterprises, the conventional and alternative SCBA models are radically different in both the approach to inquiry, and the result of such inquiry. Specific theoretical and real world concerns, listed below and detailed in subsequent chapters, suggested the need to improve upon the correspondence between conventional (economic) development theory, and real world consequences of the application of this theory to the (small island) developing country context. In the alternative
model, the activity of SCBA, in the Fiji case study, is viewed as a sort of a "black box." Inside this black box is the pyramidal version of conventional SCBA. A "meadow" vision of what is going on inside that box, and how this activity might be viewed from a broader perspective, is probed. The purpose of deepening the analysis of conventional SCBA is to expose underlying contradictions that preclude a good fit between theory and reality. It is argued that an awareness of these contradictions is a prerequisite to the improvement of the fit between theory and reality of future SCBA activities.

The specific theoretical and real world concerns that prompted the construction of an alternative SCBA are the following:

**Theoretical concerns:**
1) the methodological debate within the social sciences as to the usefulness of the empiricist method of inquiry in the search for understanding and knowledge about the dynamics of social systems;
2) the methodological debate within development economics as to the usefulness of models and analytical techniques offered within this sub-discipline of economics;
3) theoretical constructs underpinning welfare economics and their problematic nature;
4) theoretical constructs specific to Project Appraisal and SCBA, and their problematic nature.

**Real World Concerns:**
1) the negative net transfer of resources out of developing countries, despite decades of investment in development based
on models offered within the sub-discipline of development economics;

2) the worsening development patterns in Fiji in terms of economic indicators and levels of external indebtedness, despite significant investments based on conventional development models;

3) methodological and data problem areas in the conventional SCBA technique used in Fiji to analyze RE investments;

4) concerns about the activity of SCBA in Fiji in broad terms of "what is really going on, and why?"

An Outline of the Construct: Four Nested Levels of Analysis

In Figure 2.1 a basic overview of the alternative model of SCBA is presented. In Chapter VI the dynamic aspects of this model are introduced, but for the purpose of filling in details about the four basic levels of analysis, the model is presented here in a static form. In Chapters III to V these details are presented, from ever-broadening perspectives. A graphic overview of the dynamics at each level is presented. An understanding of the intra-level dynamics is a prerequisite to understanding the dynamics of the model as a whole.

The first level is the local context of SCBA. At this level the focus is on the village, the unit of analysis of a specific SCBA activity in the Fiji case study. It is at this level that (1) crucial data assumptions are made about the village, and (2) villagers, in turn, experience the consequences of SCBA in terms of an improvement or worsening of "human welfare," in a real sense.
Legend:
1. Local context of SCBA
2. Activity (and Technique) of SCBA
3. Theory of SCBA
4. Meta-theory of SCBA

Figure 2.1 Alternative SCBA: Levels of Analysis
The second level of analysis focuses on the activity of SCBA in the context of the modern nation-state (e.g., Fiji). At the national level, SCBA is performed in the context of overall development planning efforts. The technique of SCBA has been largely developed over the past several decades by the efforts of development economists and the international and regional lending agencies to organize and quantify calculations concerning project viability. The final, or "apex" numbers resulting from SCBA activities serve as a guide for national decision-makers to the efficient allocation of scarce resources. The adoption of specific SCBA techniques is often a prerequisite to consideration for loans from international and regional development banks.

The third level of analysis focuses on the theoretical underpinnings of SCBA. From a theoretical perspective, the theory of SCBA has evolved as a subset of welfare economics and development economics. Conventional development theories supporting this evolution are contrasted with alternative theories about the nature of Third World development.

The fourth level of analysis focuses on the meta-theory of SCBA. Positivism, as the dominant method of inquiry in the social sciences since World War II, has shaped the theory and the technique of SCBA, and hence is relevant to a discussion of the consequences of SCBA. At the level of presuppositions, SCBA, as an empiricist theory, and a highly quantitative technique, does not ask questions about related methods and assumptions.

If we think of SCBA as a diamond (rather than a black box) with many facets, four facets corresponding to these levels of analysis.
are the following: (1) the local context of SCBA; (2) the activity (and technique) of SCBA; (3) the theory of SCBA; and (4) the meta-theory of SCBA. In view of the fact that villagers have their own internal calculus, "at the level at which life is lived," as to the viability of a specific project (independent of national-level calculations), this could be considered a fifth facet.

Chapters III through V discuss SCBA at the levels of consequence, technique, theory, and meta-theory, respectively. A discussion in Chapter III of the communal ethic guiding Fijian village life is contrasted with the belief, in conventional development theory and practice, in the supremacy of the individual.

In Chapter VI the usefulness of this alternative construct in eliciting questions not asked in conventional SCBA is probed. Possible routes of inquiry between the four levels of analysis are mapped out, and several of these are explored in more detail in the Fiji case study.

In Chapter VII conclusions are made based on the juxtaposition of the conventional and alternative SCBA models. It is argued that Third World development planners would realize greater benefits from their planning efforts, and minimize the costs of project failures, by cross-checking the results of conventional SCBA activities with the results of a deliberate attempt to elicit questions at the level of presuppositions.
NOTES TO CHAPTER II


2Hermeneutics is typically defined only in the thickest of the older dictionaries, as well as in some of the most recently published ones. In the Random House dictionary (1982 edition) hermeneutics is defined as the science of interpretation, especially of the Scriptures, while the adjective, hermeneutic(al), is defined as interpretive or explanatory. Just as the concept of paradigm shift has come into vogue in the social sciences in recent decades, as a result of the attacks by Kuhn (The Structure of Scientific Revolutions) and others on empiricist epistemology as the methodology of the social sciences, so has the term hermeneutical also come into fashion. Modern usage is typically not concerned with an interpretation of the Scriptures, but rather with a concern for the shortcomings of empiricist methodologies used in the social sciences.

The usage in this research of the term hermeneutical, to indicate an alternative and interpretive approach to understanding and explanation of human phenomenon, is discussed in considerable detail by Michael Shapiro in Language and Political Thought (New Haven: Yale University Press, 1981, pp. 1-25). Emphasis is on the kinds of meta-level concerns one normally associates with an interest in the philosophy of social sciences—problems of meaning and truth, explanation and understanding, interpretation versus hypothesis testing, and so on—but on a selective (rather than comprehensive) and applied (the relation of theory to activity in a particular case study) basis intended to demonstrate the need for a reoriented perspective. Analysis is not about objects and experience, it is constitutive of objects and experience. This is not the subjectivist position that there is nothing in the world until we cognize it or speak of it. Rather, it is the position that the world of "things" has no meaningful structure except in the connection with the standards we employ to ascribe qualities to it. Therefore, we cannot speak about the world of experience without beginning with some presuppositions about the boundaries that distinguish one object or event from another. It is the existence of rules ("of the game") that prescribe role entries and exits of persons into and out of a particular category, e.g., (economic) policy adviser. In this context, metapolitics implies an interest in analyzing commitments that are logically anterior to the usual referents of that term, a purposeful and necessarily interpretive attempt to raise meta-level questions, literally those lying behind the kinds of questions that typically direct (economic) inquiry.

3Political Economy is defined here in terms of the interface between metapolitics, broadly defined as an interpretive method of
inquiry focused at the level of presuppositions, and economics, narrowly defined in terms of the empiricist method of inquiry used in conventional SCBA, in a small island, developing country context.

This definition of political economy contrasts markedly with definitions offered by historical economists. In the latter context, the term denoted, until recent times, the common name for the study of economics. Pearce, in *The Dictionary of Modern Economics* (Cambridge, MA: The MIT Press, 1983, p. 342), provides an example of the latter definition of political economy:

> Until recent times the common name for the study of the economic process. The term has connotations of the interrelationship between the practical aspects of political action and the pure theory of economics. It is sometimes argued that classical political economy was concerned more with this aspect of the economy and that modern economists have tended to be more restricted in the range of their studies.
CHAPTER III
VILLAGE LEVEL ANALYSIS

Introduction

In conventional rural electrification SCBA, concrete details are needed about (1) the target population; (2) end-use priorities; and (3) technology candidates, in view of the first two factors. These three considerations provide a basic outline for village level analysis in the Fiji case study. In this chapter, village-level inputs to SCBA are discussed (see Figure 3.1). In the final chapters the output of SCBA, in a broad sense, is analyzed in the local context.

There are many facets of village level analysis to consider in choosing technology A, designed for end-use B, in location C, and in cultural context D. The latter consideration is probably the most important consideration in predicting the ultimate success of a village RE project, yet the majority of analyses are preoccupied with the first three considerations, to the exclusion of the fourth. In this analysis the cultural context is, however, the starting point for the analysis.

Besides identifying the location for a specific project, it is necessary to have an understanding about the level at which life is lived. There is a basic distinction between (1) a Fijian living in a village targetted by SCBA (for selection or rejection of a specific RE project); and (2) an outsider to this context. In the latter category a further distinction can be made between Fijians
Targetted Population:
Internal calculus based on the social group as the unit of analysis

Underutilization of hardware and inefficient use of scarce resources.

Failure to achieve anticipated levels of improvement in human welfare.

External calculus based on the individual as the unit of analysis.

End-use priorities

Technology candidates

Figure 3.1. Village Level Analysis: The Local Context of SCBA
and non-Fijians, especially in the context of analysts and decision-makers who participate in the activity of SCBA. Fijians who have intimate knowledge of village life-style on the one hand, and the richness of the symbolism and meaning inherent in the Fijian language on the other, are more likely than a non-Fijian to keep sight of the importance of factor D in probing the depths of the interrelationship between factors A, B, C, and D mentioned above.

Given that this chapter is written by a non-Fijian analyst, the section on village level goals frequently cites noted Fijian authors. Although it is not practical to expect every external analyst to immerse himself/herself in the local language and culture, a caveat is, nonetheless, in order as to the limitations on the depth of knowledge one can expect to attain through second-hand information. With this caveat in mind, the final section outlines the nature of data collection by the ADB consultant team, on the one hand, and my own efforts, on the other hand, and the village level.

**Target Population**

**Village Level Goals--The Level at Which Life is Lived**

The basic values underlying traditional Fijian culture are exactly opposite to those defined as elements of success in the achievement of economic growth (see Chapter V). Life in a Fijian village is characterized by a communal, rather than an individual, approach to organizing the classical factors of production; capital, land, and labor. With the copra knife as the only tool familiar to most households, the gap between village life and modern, technological society is considerable.
The propensity to accumulate capital saving, especially on an individual basis, is almost nonexistent. Asesela Ravuvu describes this characteristic in *The Fijian Way of Life*:

*Maroroya me qai kena na baca (To keep it only to feed the worms)* is an expression conveying the idea that keeping or accumulating things is pointless because one does not know what may happen the next day; and does not live long enough to use all he has accumulated. The implication is that material possessions must be enjoyed and shared with others while the going is good. What is the pleasure of hoarding? When one dies, his possessions are left behind. If they are entombed with him, the worms would devour them. \(^1\)

Moreover, it is difficult to hold on to material possessions and cash because of the widespread practice of kerekere (to request), a custom based on the right of certain relatives (and even friends) to ask something of you and expect to receive it. No particular repayment is expected, only the right to ask a favor in return.

In most cases land in Fiji belongs to the mataqali (an agnatically related social unit--usually a lineage of the larger clan). Dr. Isireli Lasaqa, a former Secretary to Cabinet, explains that Fijian society is very much tied to the land: a Fijian also identifies himself with a piece of land. The ownership of his land, in the local context, is based on common descent and binds his common proprietary interest. He places much faith in this system of landholding as immutable. He believes that the foundation of his landholding cannot be altered and will remain so for all time; there is little evidence for thinking otherwise. \(^2\)

Use of village land is, therefore, always subject to the consensus of other members of a mataqali, particularly the elder members. Production output is subject to rapid and equitable distribution. This system discourages the entrepreneurial spirit, which is the cornerstone of private capitalism. It has, however, served the Fijians
well for thousands of years in their patterns of "subsistence affluence." I define subsistence affluence as an economic organization that involves simple technologies, has small, relatively independent social units capable of producing most of the goods it consumes, and healthy, well-fed members.  

I observed during fieldwork that the more remote the village, i.e., the smaller the percentage of inhabitants who had had contact with modern society in urban areas, the larger and stronger the average body physique. As well as being generally healthy and well-fed, rural villagers share a lot of joyous moments in their communal way of working and playing. If laughter had a value in the GDP accounting system, Fiji would no longer have an economic crisis on its hands.

The organization of labor in the village is closely related to the land-owning system. Dr. Lasaqa notes that:

Fijian society is traditionally hierarchical in structure. The essential social strata to which every Fijian belongs are the i tokatoka (extended family), the mataqali (family group), and the yavusa (clan). In any locality a number of yavusa group together to form a vanua, which is in fact a socio-political association, cemented by social and economic ties, with common allegiance to a chief. A number of vanua group together through kinship links, marriage, social and ceremonial ties between the leading yavusa, and conquest to form a matanitu (state) . . . Each social unit in the hierarchy has a fixed position and there is a known order of seniority which is applied both within social groups and between them. The position of a social unit in a particular hierarchy is known, and carries specific functions and responsibilities.

These functions and responsibilities, and their organization by chiefs, form the basis of the organization of labor in traditional Fijian society.
Fijians regard their society in terms of a fundamental unity between the people and the chiefs. They often refer to this unity as turaga ni tamata and tamata ni turaga, that is to say, the chief belongs to and is of the people, and the people belong to and are of the chief. This unity is cemented by a common bond of allegiance, loyalty and reverence binding together the people and their chief, and is demonstrated by the reciprocal duties each side has for the other. The Fijians realise that they must serve their chiefs and at the same time the chiefs are obliged to look after their people.\(^6\)

Whether the task is fishing, farming, housebuilding, or feeding thousands of visitors, the relevant social unit (depending on the quantity and type of work), under the direction of its chief(s), typically performs in a very efficient, and at times Herculean manner. Once the particular task is completed, the concept of a "work schedule" vanishes.

Cash incomes in villages are meager in comparison with urban and First World standards. RE projects that fail have an opportunity cost in terms of money spent on electricity, rather than on some other amenity or development input. In the past, the cultural practice of frequent redistribution of material goods (and cash incomes) has tended to emphasize the non-material, rather than the material dimension of daily living. As western concepts of the desirability of individual saving and profit-making behavior increasingly impact on village lifestyles, the tolerance of villagers for lost monetary opportunities will diminish. As the constituents of government politicians, and in particular those who are of chiefly status, this loss of tolerance will translate into an erosion of the enormous respect villagers have traditionally had for their chiefs.
Location

The Eastern Division is predominately Melanesian and Polynesian. According to the 1976 census, the population was 88 percent Fijian, 7 percent Rotuman, 2 percent Indian, and 3 percent from other races, in terms of its ethnic make-up, with a total population of 40,000, or about 7 percent of Fiji's total population. This population is scattered throughout nearly one hundred small islands, 45 of which are inhabited. The Eastern Division was the only division of Fiji to experience an absolute decline in population (of 4.2 percent) over the inter-censal period ending in 1976.7

The Eastern Division is divided administratively into four provinces: (1) Kadavu province, population of 8,700 on one main island and six smaller islands; (2) Lomaiviti province, population of 13,600 on eight islands, and containing the only "urban" center in the Division; Lau province, population of 14,500 on 29 islands; and Rotuma province, population of 2,800 on one island8 (see Figure 1.2). The Rotumans trace their roots to migration by Micronesians, Polynesians, and later Melanesians. They were colonized by the British during the same period as the Fijians were. For the sake of convenience, Rotuma was administratively merged with Fiji at the time of independence. The Fijians are Melanesian, although there has, historically, been a large Polynesian influence in the Lau province, due to its proximity to Tonga.9

End-Use Priority

An end-use, rather than a supply-oriented approach to energy planning in general, and rural electrification policy analysis in
particular, is advocated in this research. The end-use approach has
received considerable attention in the energy analysis and policy
literature during the 1980s. The following authors, to name a few,
provide examples, and discuss in detail the rationale for this approach:
Santerre and Smith,10 Ichord,11 Ashworth and Neuendorfer,12 French,13
Bajracharya, Morse et al.,14 Islam et al.,15 Ramani,16 and Siwatibau.17

Santerre and Smith proposed the FLERT (Fuel-Linked Energy Resources
and Tasks) analytical framework. One purpose of this approach is
"to identify the tasks performed by the energy outputs of small-scale
energy technologies. This is an extension of the work being done
in the developed world that focuses on the services done by energy
rather than merely on the energy content."18 Ichord noted that "[t]he
concern with detailed information on end-use demand is a relatively
new phenomena, even in industrial countries. Past emphasis was clearly
on supply expansion planning as contrasted with demand management."19
Ashworth and Neuendorfer emphasize the "bottom-up" planning approach
in their needs/technology matching process, in order to "ensure that
the introduction of decentralized energy technologies will serve the
development needs of the local population directly."20 French suggests
a "reality-led," rather than a "technology-driven" approach, with
an emphasis on "finding new systems which must fit socially and
economically as well as technically if they are to do more good than
harm."21 Bajracharya, Morse, Islam, and their associates identify
"participant observation" and "participatory and action research"
as approaches to research that involve the researcher's participation
in local activities and in informal discussions with the local
residents. This type of "action research" is advocated because it
"increases the human contact and level of understanding between surveyor and respondents, thus facilitating the exchange of information regarding nonquantified data, including felt needs, preferences, and priorities." Ramani also emphasizes a "bottom up" approach in his discussion of the upward/downward flows of information in decision-making. Needs assessment in rural areas is identified as important input to (a) policy-oriented; (b) national plan-oriented; (c) consuming sector-oriented; (d) program-oriented; and (e) project-oriented decision-making processes. Siwatibau, a former Director of Energy in Fiji, and Sutton note that the planner should work backwards from end-use needs to energy supplies, an approach that requires close coordination between energy planners and planners in other sectors.

This research on RE policy in Fiji is part of the Pacific Island Energy Studies Project on RE policy in various Pacific nations, conducted jointly by the East-West Center Resource Systems Institute and Pacific Islands Development Program (PIDP). In late 1984 field research efforts in Fiji, Papua New Guinea, the Cook Islands, and the Federated States of Micronesia were compared by the PIDP researchers. Discussion of the end-use approach suggested the following caveat in designing RE projects: "When estimating the demand potential, planners must remember that electricity is but a means to an end. Poorly conceived RE projects can degrade as well as improve rural welfare and can reduce as well as increase the incomes of rural residents." The following typology of RE projects, based on the estimation of demand potential, resulted from this sharing of research efforts.
Welfare

From the perceptions of rural residents, improved welfare is the most important benefit of RE. Projects oriented to improving welfare can be divided into two categories of end-uses: household and communal.

Household end-uses include lighting, ironing, and the use of radios, videos, and refrigerators. Lighting is the most important single way in which electricity is being used in rural villages. A few households in each village typically possess electric irons, in addition to benzine or charcoal irons. Radios are common (many do not have AC-DC adapters, though), but videos and refrigerators are rare. Use of the latter is not possible in the typical situation where the generator is run only for a few hours in the evening (under the best of circumstances).

Communal end-use is typically limited to lighting in churches and meeting halls. In rare instances outside lighting was present as well (it would generally be inappropriate to term this use "street lighting," as there were typically no streets in the villages).

Productivity

RE projects which resulted in productivity of some type, and the generation of cash incomes, were all too rare, despite initial assumptions that such productivity would be the inevitable outcome of having electricity available in the village. Productivity applications include the following: the use of (1) refrigerators and/or freezers in shops; (2) videos associated with an admission price; (3) electric appliances in bakeries; (4) modern *yagona* pounders
(yagona is the national beverage of Fiji, obtained by mixing water with the pulverized roots or stems of the yagona, or Piper methysticum plant); (5) electric tools in workshops; (6) electric sewing machines to produce articles for sale; (7) electricity-based equipment in sawmills; and (8) lighting specifically associated with tourism.

Mixed

A RE project classified as "mixed" includes the existence of both welfare and productivity-oriented applications at the same rural location.

Other

In estimating and ranking energy needs in a village, it is highly possible that the perceived need for electricity has a lower priority than the potential output of some other energy-related project, e.g., smokeless stoves. This situation is classified as "other" in this end-use typology.

Technology Candidate

There are five candidates for technologies linking end-use and energy supply components of a RE system that were considered relevant to the small, outer-island context in the Pacific (six including grid extensions): (1) diesel-fueled generator sets; (2) solar-powered photovoltaic panels; (3) micro-hydroelectricity plants; (4) biomass-fueled reciprocating steam engines; and (5) coconut oil as a diesel substitute to fuel generator sets. In this particular study grid extensions were ruled out, as only one of the islands in the study had a centrally-located generating system. On this island, as on the other islands included in the study, transmission and distribution
cost estimates were too high for most of the unelectrified villages to be considered for grid extension. Wind systems were excluded because of the existence of cyclone situations. Wave power, ocean thermal electricity conversion (OTEC), and biomass gasifiers were also excluded because these technologies are generally unproven, as well as inappropriate, to the village setting.

**Diesel**

Diesel-fuel-based generator sets are the norm in already electrified villages in the outer islands of the Pacific. These systems serve as the benchmark for benefit and cost comparisons with other RE technological alternatives.

**Solar**

Solar-powered photovoltaic cells (commonly abbreviated as PVCs) provide a very attractive alternative to diesel generator sets in most villages under consideration for electrification. In terms of the total number of RE systems already in place in the late 1980s, PVCs were the second-most common RE technology in use in the Pacific. PVCs are particularly applicable where lighting for welfare purposes is the primary end-use under consideration.

**Micro-hydro**

Although most of the smaller islands in the Pacific are of insufficient altitude to consider hydroelectricity as a viable technological candidate, there are typically several sites in each country which merit further investigation as potential micro-hydro applications.
Biomass/Steam

Biomass-fueled reciprocating steam engines were a proven technology of the Industrial Revolution in Europe and North America. There was a sharp decline in the use of this technology during the modernization era in the developed countries. Several manufacturers of such equipment still exist in these countries, and they have experienced an upturn in the number of requests for estimates for their equipment, for use in the Pacific context. The two major categories of biomass fuels under consideration are basically sawmill and copra (husks and shells) wastes. The economic viability of a biomass/steam system depends on both the availability of the fuel on a reliable basis, and the existence of sufficient end-use applications to justify running the system most of the time.

Coconut Oil as a Diesel Substitute

The economic viability of coconut oil as a diesel substitute depends on a price comparison of both diesel fuel and coconut oil at the specific site in question. Other important factors include the existence of a sufficient level of demand for electricity, the availability of coconut oil on a reliable basis, and the maintenance of the system in good working order. The existence of this combination of factors is a rare occurrence indeed in the outer island context, and generally explains why applications based on this technology typically never leave the laboratory.
Second-Hand Information Relevant to Village Level Analysis: A Caveat

ADB Consultant Team Data Collection on Villages in the Eastern Division of Fiji

There are more than 30 inhabited islands in the Eastern Division of Fiji. The logistics and transport problems of getting to these villages are considerable, given that there are few airstrips, or roads, once the island is reached. The ADB consultant team acknowledged these difficulties in their report to the government.

Nearly all data on villages in the Eastern Division were obtained second-hand from various government ministries and agencies (see Chapter IV). The exception to this, in the case of the ADB consultant team, was a three-day trip to Lakeba island (by plane), during which seven villages were visited by one person.

Two problematic aspects of this second-hand approach to village-level analysis are noted by this author. First of all, in the "fly in/fly out" method of collecting first-hand information, it is difficult to grasp the underlying dynamics of village life that help to understand either the cultural context of how end-use priorities are determined, or cultural factors in determining the appropriateness of a particular RE technology candidate. Secondly, given that first-hand information is therefore limited, based on the fly in/fly out method, it is necessary to make "armchair assumptions" about village-level data used in computerized analysis. The basis for these assumptions is not always clear when the results are announced, and the precision, or "hardness" of the output of the analysis may, therefore, be rather superficial.
Trying to understand a different culture than one's own is easier said than done. It calls for virtual immersion in the (rural) lifestyle for a sufficient length of time to be able to accurately describe the rural context in a variety of ways. Language is frequently a significant barrier to this process, and rapidly-acquired fluency in the local language is a great asset. Fieldwork is not for everyone: it can be a challenging, exhilarating experience of personal learning and intellectual insight, or it can be frustrating, frightening, tedious, boring etc.\(^{27}\) Much of the richness of symbolism and meaning of a particular language are lost when one relies on a translator.

In rural Fiji, for example, few are fluent enough in English to ensure communication on topics of any depth. Chiefs, who typically enjoy a high level of respect among their own people, find it degrading to try and struggle along in English. The reply to a question in English is often total silence, while a question in Fijian, no matter how poor the attempt, is often greeted with a warm and enthusiastic reply.

Logistic and transport factors made it difficult to reach many of the villages.\(^{28}\) In the Lau province, the official permission of the Prime Minister was needed.\(^{29}\) After performing the sevusevu ceremony in each village, and receiving permission to conduct research from the village chief(s) as a result of discussions around the yaqona bowl,\(^{30}\) arrangements were then made for me to meet with the Electricity Committee.

Each of the villages visited that had a PWD-installed diesel generator set had formed an "Electricity Committee." These committees
had two purposes: (1) to collect money to pay for operating, main-
tenance, and repair costs; and (2) to operate the RE equipment on
evenings when the equipment was in working order and fuel was available. 
There were typically many days every year in each village when these conditions were not met.

In some villages only men were members of these committees, but the interesting cases were situations where the men had not been able to collect the money on an adequate basis, and women had taken over this role. In all cases men operated the equipment, typically two per village working on an alternating basis. Only in rare cases did the operators have previous experience operating mechanical equipment, or possess the proper tools or knowledge to do preventive maintenance.

Prior to the formal meeting I would go to the shed where the generator set was housed, take notes on the equipment, tools, fuel supply, etc. present, and discuss with the operators the pattern of operation, history of breakdowns, points of contact with the PWD office in the capital city, etc. These discussions in the engine room helped to stimulate subsequent discussions at the formal meeting(s).

These "formal" meetings were always held around the yagona bowl, and involved a range of tactics on my part to elicit information on costs, benefits, and operating patterns associated with the RE equipment. The tactics varied, depending on the personality, sex, and seniority of the person with potential information to offer. This job would, of course, have been far easier if there had been some sort of written documents in existence that we could have examined together. The existence of such documents was as rare as the existence of tools and skills. Obtaining information relevant to my research proved,
therefore, to be a very creative exercise, but did not necessarily produce standardized results. A lot of writing on my part during this exercise intimidated the people, causing the level of silence to increase. I had to be discreet, therefore, in taking notes. It was also difficult finding privacy to reconstruct my notes, so that I could properly fill out the "Village RE Profile" questionnaire I had prepared for each village on the survey. As I was the first person to ever attempt to record this type of data on a comprehensive basis, it was a novel experience for both myself, and the members of the committees. When it was possible to stay several days in each village (marine weather being an important factor in determining the schedule), I personally went around to every household with members of the committee, and observed and discussed the use of light bulbs, extension cords, irons, radios, and other electrical appliances. This was a very time-consuming process, but helped to unravel mysteries that often remained in my mind at the end of the committee meetings.

In most villages I identified definite problem areas during the electricity committee meetings. Before departing the village, I tried to arrange another meeting with the village elders present, as well as members of the electricity committee, to discuss these problems. At some point during this meeting I would pass around a brochure written in Fijian on smokeless stove designs, promoted by the DOE and the CATD. This typically caused a great stir of interest among the villagers, and it was often difficult to refocus the conversation on to electricity again. On several of the islands visited, a stove of this type had recently been installed in the Secondary School, or a CATD graduate had recently acquired molds to make these stoves for individual
households. I had not anticipated this situation, nor did I have the staff or time to pursue this topic in the rigorous manner it deserves. A rough "barometer" reading, based only on the volume and intensity of discussions on electricity vs. cooking stoves, clearly indicated to me that investment in the latter technology, although not as "sexy" or "modern" as investment in RE equipment, had been overlooked as a strategy to improving the welfare of rural inhabitants.

Village-level meetings, as well as casual observations and discussions while in the village, provided the additional opportunity to compare the overall range of development inputs, facilitated by various government agencies, from several perspectives. The planner's perspective, as symbolized by colored pins on the wall of the planner's office, designating government interventions, focused on "targetted populations." As targets of government interventions, the villager's perspective reflected the reality of living with these interventions on a daily basis, on the one hand, and the presence or absence of an expressed need or desire for these interventions, on the other hand.

It was often possible to meet with district and provincial level decision-makers in a village setting. These decision-makers include the relevant officers of the Fijian Administration, as well as chiefly representatives from the villages that comprise a specific district, and the districts that comprise a specific province. In a few cases the FA officers were met during visits to the MFA or MRD offices, but in most cases they were met at district or provincial-level meetings, held in a specific village on a rotating basis, and attended by both groups of decision-makers.
My involvement in these meetings was largely as an observer, although I did answer questions fielded to me from the floor concerning RE problems, and participated in lengthy side discussions on RE topics.

My main purpose in attending these meetings was to have a vivid mental image of all levels of communication flows relating to the public policy process, starting at the village level, and proceeding upwards through the traditional, and eventually the modern-style forums, to the highest levels of decision-making in the modern government apparatus. An additional purpose was to meet, in advance of the "rough seas survey," the village leaders who I would be dealing with on a daily basis during this survey.

On a number of occasions I had the privilege of meeting with national level decision-makers in a rural setting. On some occasions this was associated with the meetings described above, and on others it was more of a happy coincidence (typically occurring when these people were on leave in their home village). Casual and relaxed discussions in rural settings often provided insights that formal office meetings with these people would have never produced. These rural-based meetings were an important complement to urban-based data collection efforts.
NOTES TO CHAPTER III


4 This evidence is in direct opposition to evidence from studies of the Japanese after World War II who, after extended contact with modern society, on the average were of a larger physical size.


26. These five technological candidates are discussed in further detail in the proceedings on (1) a training workshop on the socio-economic impact of RE in the Pacific islands, held in Suva, Fiji from June 20-24, 1988, and jointly sponsored by the Pacific Energy Development Programme (PEDP), the United Nations Economic and Social
Commission for Asia and the Pacific (ESCAP), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), the Australian International Development Assistance Bureau (AIDAB), the United Nations Development Programme (UNDP), and the South Pacific Bureau for Economic Cooperation (SPEC); and (2) the Pacific International Roundtable conference (to a more limited extent) on innovative planning tools, supply options, and financing for the power sector, held in Honolulu from September 16-18, 1988, and sponsored by the East-West Center, the Electric Power Research Institute (EPRI), the Pacific International Center for High Technology Research (PICHTR), the State of Hawaii, the Council for Renewable Energy Education, and the U.S. Committee on Renewable Energy Commerce and Trade (CORECT). Authors who have contributed papers to the workshop in Suva that are specifically relevant to one of the five above-mentioned technology candidates include the following: (1) diesel--Cheatham, Chandra, Hanaipeo and Yadav; (2) solar--Wade, Lai and Dawson, Johnston, Peter (1982) Photovoltaic Systems for Rural Lighting, Department of Energy, Suva; and Droz, Tom (1985) Photovoltaic Lighting Systems for Rural Fiji, East West Center, Honolulu; (3) micro-hydro--Fairbairn, Wade, Gibson, and Hanaipeo; (4) biomass/steam--Harwood; Feinstein, Charles (1984), Wood-Fired Cogeneration for Rural Pacific Communities: Taveuni Case Study, East West Center, Honolulu; and (5) coconut oil--Solly (earlier papers based on work at the University of the South Pacific); Kaufman, Kenton (1984), Technical and Economic Viability of Coconut Oil and/or Its Derivatives as a Diesel Substitute in the Fiji Islands, Pacific Energy Development Programme, Suva; and Keith-Reid, Robert (1984), Fuelling the future: New ways to use a coconut, Islands Business 4:10-15. Other papers presented to the PEDP-sponsored workshop, and to the Honolulu conference, focus on RE policy, project planning, project management, policy analysis, aid, pricing, supply options, and household energy surveys.


28 Until the opportunity arose to use a fisheries boat, on a schedule to suit my research needs, transport to the outer islands had been by government vessels. Most of the islands visited had no airstrip, and the unpredictable and infrequent trips by government vessels did not prove to be a satisfactory means of getting to villages with RE equipment.

The government boats typically anchored offshore from one village per island visited, for a period of several hours. During this period all passengers were to stay within calling range of the captain, as there was no phone system on any island in the Eastern division (with the exception of the town of Levuka on Ovalau island). When boxes of merchandise destined for shops (and occasionally building materials as well) had been unloaded, and sacks of copra destined for oil mills had been loaded, the vessel headed off on a course that was not necessarily fixed. It was not unusual to wait several months for the next arrival of a government vessel. If the island was one of
the few that had roads at that time, ground transport to any other village was also irregular and infrequent.

By February of 1984 the decision was made to secure the use of a boat, to be used solely for my RE fieldwork purposes. Staff of the Institute of Natural Resources at the USP, and the Fisheries Department of the MPI, facilitated the process of obtaining the use of a 30 foot, double-hulled, fibreglass punt, originally built for the purposes of hauling in nets. There were no seats or cabin on the boat, and the sides were 15 inches high.

The next hurdle to cross was finding a boat crew. Since there was no research funding allocated for this purpose, this problem required a creative solution. Although my husband grew up on the desert, and had no prior experience at sea, he volunteered to be the captain, and quickly learned basic navigation and outboard engine maintenance and handling skills (over difficult reefs). As mentioned in Chapter IV, the Center for Appropriate Technology and Development (CATD) was also interested in village-based data from the Eastern Division of Fiji, and therefore provided funding for fuel supplies and other basic provisions. A 40 horsepower, kerosene-fueled engine was purchased (five years later this engine remained the only one of its kind in use in Fiji, and was a major topic of discussion wherever we went), and 700 liters of kerosene poured into 60 liter containers and tied to the sides of the boat. Fuel was resupplied by shipping drums of kerosene to strategic points on our route, via government boats. Kerosene was chosen as a fuel because of (1) the safety hazard of carrying major supplies of pre-mix on board; (2) the cheaper (subsidized) price of kerosene, and (3) the nonavailability of pre-mix for purchase, at any price, on the outer islands should we run out of our own supplies. The purchase of a two-way radio was beyond our resources, the only safety items being a decrepit 12 horsepower backup engine without any knobs, flares, and an emergency signal device borrowed halfway through the trip (fortunately we never needed to test the likelihood that a plane might fly overhead and pick up the signal). The minimum crew was two persons, and the maximum was four persons. We owe our lives to the skills of our Fijian crew, who we continue to help out whenever they have a family emergency. As there were no research funds for hiring the boat crew, we ended up giving away nearly all of our clothing and other personal items. Each person on board was allowed one five-gallon, waterproof bucket for his personal items. The remaining buckets, which were also tied to the sides, contained my office, my husband's clinic (as a physician he was always in high demand in the villages), tools, fishing gear, water, food, cooking utensils, gifts for hosts and hostesses, and large bundles of yaqona roots to present in each village on the research schedule. The latter item was the most precious item of cargo, as everyone had to stay aboard until my ceremonial presentation of yaqona ("sevusevu") had been accepted by the chiefs of the village. The longest open ocean crossing was 70 miles, and on many crossings we were pounded by waves from above and below for eight to ten hours without relief. As the trip progressed, the name of the boat jokingly changed from the original Adi Livaliva (roughly translated as the "Queen of Electricity"), to the Adi Liliwa (the "Queen of Freezing Weather"), and finally to the
Adi Lialia (the "Queen of Craziness"). There is no intention to repeat at any time in the future this adventurous approach to research, but at the time it seemed to be the only feasible alternative to get to the outer islands on a schedule that permitted the accomplishment of research goals.

As mentioned above, it was necessary to have the permission of the Prime Minister in order to conduct fieldwork in the Lau Province of Fiji. Two historical precedents gave rise to the need to satisfy this crucial requirement before setting out to collect village-based data.

The first precedent was the absence of any official tourism activities in the Eastern Division at the time, obligating all foreigners, including passing yachties, to obtain permission in the capital city before (anchoring near or) setting foot on any of the islands in this division. As a tourist, one could obtain permission from a mid-level officer of the MFA. As a researcher, one needed permission from the Minister himself.

The second precedent resulted from the earlier research activities of another lady researcher, who had visited several of the outer islands. This researcher turned over sensitive government files to the foreign press on the eve of the general election in 1982, causing lawsuits to be filed against her by members of the ruling Alliance Party. This topic was making headlines in the media at the time of my arrival in Fiji, and resulted in a general level of suspicion, particularly among chiefly leaders from the Eastern Division, in the purposes of (lady) researchers seeking permission to work on the prime minister's home turf (the Lau Province).

For these reasons my file sat for four months, awaiting the prime minister's signature. The problem was finally solved during the Christmas holidays, while staying in the village home of a friend met at the East-West Center, before departing for fieldwork. This village was adjacent to the prime minister's home village, where he traditionally spends the Christmas holidays. Village elders, impressed with my fluency in the Fijian language and adaptability to the village environment, arranged my first meeting with the PM. This meeting lasted for several hours, and led to other meetings in rural settings, a longer-term working relationship with the Prime Minister's Office, and the rapid processing of my file.

Meetings around the yaqona bowl took place wherever there was a desire to get deeply involved in discussions based on the village context. In nearly all cases the language spoken was Fijian, and in few cases were there women participants. Whether the setting was a government office, or a makeshift shed in the village, several important characteristics of such meetings distinguish them from meetings held in more of a western style (seated on a chair, at a table, etc.): (1) seating around the yaqona bowl, on the floor (with
particular attention paid to not allowing one's head to be at a higher level than that of the others), is based on traditional notions of hierarchy, seniority, and respect; (2) Fijians attach a lot of importance to these forums of discussion, and do not miss them unless there are otherwise compelling reasons to do so; (3) although not addicting or debilitating in the sense that alcohol and other stimulants can be, yaqona tends to produce a feeling of relaxation that encourages those used to the taste (most westerners never get used to the taste) to come back for more; (4) the traditional procedure of serving yaqona in rounds, to generally every person sitting in the circle, gives a sense of unity among those present; (5) as the person being served a bowl (a half of a coconut shell) of yaqona drinks, the rest of the participants clap in a ceremonial manner to wish that person well; (6) active participation in discussions, as well as a physical presence, is strongly encouraged by various means, such as joking behavior; and (7) bystander roles are further discouraged, in that a decision to discontinue drinking implies a decision to leave the room (shed, etc.). Since drinking yaqona traditionally precedes, rather than mixes with or follows the eating of a meal, the decision to eat typically prompted an exit from the yaqona circle.

I made a major attempt to participate in discussions around the yaqona bowl, including forums at the village, island, district, provincial, divisional, and national levels. The incredible scarcity of paper, books, and written files of any kind in the rural setting confirmed my belief that the most important source of information was meaningful dialogue, based on mutual trust, and contributing to awareness-raising activities. In the context of participating in forums where nearly all, if not all, of the other participants were dark-skinned Fijian men, the subject of mutual trust between these men and a lady researcher is of considerable significance. As was already mentioned, being a lady researcher had at least one disadvantage, that took several months to overcome. The process of gaining the respect of the villagers in general, and the decision-makers in particular, involved paying close attention to the traditional Fijian life-style as a whole. Important factors in gaining the respect of traditional decision-makers were the following: (1) speaking their language; (2) exhibiting respectful and courteous manners; (3) paying attention to customary practices, including those of dress, eating, church-going, and ceremonial occasions; (4) exhibiting listening, as well as verbal skills; and (5) showing an appreciation of the warm and generous hospitality offered throughout the fieldwork period. Appreciation of the hospitality meant being able to (a) enjoy simple and repetitious, yet nutritious meals from the ocean and their gardens, served on a cloth on the floor; (b) become used to sleeping on mats on the floor (with head lice as frequent companions); (c) forget western notions of wanting "privacy," which is a foreign notion to Fijian villagers, rarely available in one-room houses, and elicits attempts to rescue those believed to be suffering from this foreign type of behavior; and (d) most importantly, reciprocate the enormous love, empathy, and understanding that flows from people well versed in the human skills of communicating. Once I learned to gain the respect
of the villagers, including men, women, and children, through participating in everyday activities, the formal meeting part of my research seemed to "take care of itself."

Several people asked me if I thought it was a net advantage or disadvantage to be a white-skinned, woman researcher. By the end of the year of fieldwork there was no question in my mind that for me, being a lady researcher was an advantage. On the few occasions when white, male colleagues were also present in rural-based meetings, I felt that the local people were often intimidated by their presence, and did not share their ideas freely. More important than either the sex or skin color, though, is the willingness to follow the guidelines listed above to gaining the respect of villagers.

31 These events were not at all comparable to western-style meetings or conferences I had ever attended. At the two provincial meetings I attended (at Nabasovi village on Koro island in the Lomaiviti province, and Tarakua village on Cicia island in the Lau province), as well as at the district-level meetings on Natrai and Lakeba islands, the experience was so enriching in terms of my awareness of the breadth and depth of Fijian culture as a living entity, that it has always been difficult to find words to describe these experiences. These paragraphs are but feeble attempts to do so.

These meetings occur twice a year, and are attended by several people from each village in the district or province in question. Government vessels spend days picking everyone up, island by island, and dropping them off again at the end of the meeting. Each of the villages on the island where the meeting is held has responsibilities in catering for hundreds, and even thousands of guests. Any savings the village had are typically depleted after such an event, as well as the supply of suckling pigs and cattle. Food is cooked in earth ovens, served on various types of plant materials, and always plentiful, no matter how many show up or how long the event lasts. The incredible efficiency of these catering operations would put many first class hotels to shame.

Cultural events are also prominent on such occasions, and include elaborate presentations of ceremonial items to the highest chief present, traditional dances (mekes) by groups of men and women, displays of handicrafts (especially traditional tree bark fabrics and woven mats), and contests to see who grew the longest yam, etc.

In the case of a provincial meeting, the business part of the meeting lasts two to three days, and features a yagona bowl a yard in diameter, as well as many side bowls of yagona (and side discussions). The participants are generally seated on the floor on mats, in makeshift sheds, with some sort of table arrangement in front of those with central roles in the meeting. Women generally have separate meetings, reporting the outcome of their meetings to the main meeting, where they are usually in attendance on the sidelines. Because of
the respectful introductions prefacing many statements made during the meetings, a good deal of patience is needed to hear out everyone's ideas on a particular subject. Some are initially aired at the smaller yaqona bowls, which are served from on a 24-hour basis. Considering that these people are all related in some way or other, a special type of diplomacy pervades at these meetings. The working sessions may go on into the evenings and nights, but there is always another contingency relaxing from the labors of catering, and catching up on the news, while dancing and drinking yaqona until dawn. Everyone brings their mat and pillow along to these meetings, and sleeps wherever and whenever they can manage it (there is typically a lot of catching up to do afterwards). Boat farewells, as the last meetings are coming to a close, are festive and emotional occasions. Although the time for farewells arrives quickly for most participants, the memories of these events are a long time in passing.
CHAPTER IV

NATIONAL LEVEL ANALYSIS

Introduction

The unit of analysis at the second level of the alternative SCBA construct is the nation-state. At this level national development plans are formulated. In these plans, national planners state the objectives that drive the public policy cycle (see Figure 4.1) within a particular sector or region. Project appraisal is but one step (see Figure 4.2) in the overall effort to plan a (sector or regional) program, identify and appraise specific projects within that program, implement those projects selected for financing, sustain and evaluate projects once they have been implemented, and refine the overall program based on these evaluations, as well an updated set of objectives guiding the national planning process.

In reviewing the history of the development planning process in Fiji, it is important to keep in mind that the existence of such plans is typically a prerequisite to entering into discussions with international and regional lending agencies regarding loans for major public investment projects. In Fiji's case, the largest national investment to date has been in the energy sector. Objectives guiding overall development efforts, as well as those specifically guiding the energy sector, are reviewed.

As a result of project appraisal activities within each sector of the national economy, decisions regarding the total of national level public investments are made by government decision-makers. The
Development planning objectives drive public policy cycle

Local Input--
1) Planners identify projects, provide manpower and logistical support
2) Technique of SCBA (input may be minimal)

Output is advice to guide national decision-makers re: project selection/rejection.

External Input--
1) Technique of SCBA (method and assumptions)
2) Actors to implement technique e.g., World Bank, Asian Development Bank representatives

Figure 4.1. National Level Analysis: Activity (and Technique) of SCBA
Legend:

STEP A: PROGRAM PLANNING
STEP B: PROJECT APPRAISAL
STEP C: PROJECT SELECTION/REJECTION
STEP D: PROJECT IMPLEMENTATION
STEP E: PROJECT SUSTAINMENT
STEP F: PROJECT MONITORING, EVALUATION and REFINEMENT
STEP G: PROGRAM REFINEMENT

Figure 4.2. Project Appraisal (SCBA) Role in Public Policy Cycle
central planning office coordinates the overall planning and project appraisal effort, relying on inputs from specific ministries and government agencies involved in the implementation, sustainment, and evaluation of projects relevant to a particular sector. In the Fiji case study, an overview of the ministries and other government agencies relevant to the rural electrification project cycle is presented.

In terms of conventional economic development theory, the underlying assumption is that if national level investments in economic development are made, then economic growth will occur, i.e., if public investments $X$ are made, then $Y$, an increase in national income (Gross National Product, or GNP), occurs. In terms of the outcome of a specific village RE project, the implication is that if investment $X$ in village A is made, then the welfare (generally measured in terms of income) of village A ($Y$) will be improved.

A validity check is made on this basic assumption underlying the conventional economic development model Fiji has based its development planning process on. Patterns in the level of external indebtedness, as a result of these investments, are compared to patterns in GNP and exports of goods and services. The promises of economic development investments at the national level have clearly not been realized in the Fiji case study. Instead, an unintended consequence of these investments is a substantial national debt problem, threatening to diminish even further the prospects for economic growth in the future.

Given that the project appraisal step is a crucial step in the overall development planning and investment process, this research focuses specifically on this step. In the small (newly) developing
country context, major investment decisions typically concern large infrastructure projects (e.g., hydroelectric dam or road-building projects). Central planning offices are chronically short of economists trained in the elaborate procedures involved in performing SCBA of major projects, particularly when the analysis is made with a view to attracting foreign investment capital for the project. In this context, the developing country typically welcomes assistance in the activity of SCBA, commonly referred to as Technical Assistance, or TA. The lending rates of the development banks are generally on more favorable terms to the developing country than those of the commercial banks, although in either case there is a "loan spread," or profit margin for the bank involved. If the only prospects for obtaining substantial loans of foreign capital are either development banks or commercial banks, it is not surprising that offers of TA from development banks are rarely declined.

In this context, the activity of SCBA involves two sets of actors, those representing the nation-state, and those representing the development bank. Having already introduced the former set of actors, it is now relevant to introduce the latter set as well. Before focusing on the specific actors relevant to the activity of SCBA in the Fiji RE case, a general review is made of (1) the history of SCBA, and (2) the major actors on the development bank stage (in Fiji's case the World Bank, the Asian Development Bank, and considering Fiji's debt problem, the International Monetary Fund as well).

The activity of SCBA in the Fiji RE policy context involved, specifically, the TATA consulting firm hired by the Asian Development Bank. The results of the TATA RE analysis, in the context of the
Eastern Division of Fiji, are briefly discussed in this chapter, and further explored in Chapters VI and VII.

Public Policy Process

The (RE) public policy process (see Figure 4.2), as discussed in various texts on the subject, can be divided into the following seven phases: (1) program planning, (2) project appraisal, (3) project rejection/selection/finance, (4) project implementation, (5) project sustainment, (6) program evaluation, and (7) program refinement, leading to further program planning activities.¹

In identifying an administrative hierarchy of procedure in the public policy process, it is useful to discuss the linkage between policy, plan, program and project. Linking these nested concepts are goals, objectives, and a set of specific actions to attain an objective.

Policy is defined by Starling as "an intelligently directed action toward consciously determined goals [or] . . . a general course or method of operation adopted or proposed for the achievement of a condition or goal."² A policy is a kind of guide that delimits action, and is much more open-ended than a plan. The subset of public policies, as defined by Easton,
Lowi further classifies public, domestic policies into three categories, according to their impact on society: (1) distributive, (2) regulatory, or (3) redistributive. RE policies are distributive policies, i.e., governmental actions that (ideally) convey tangible benefits to individuals or groups. Public policies cover a wide range of issues, including energy issues. The goal of RE policy is to increase the income, and to improve the welfare of the rural population. The relative priority of energy issues, with respect to other categories of issues, such as agriculture, education, health, taxation, etc., can change quickly over time. As discussed in Chapter I, the rise and decline of energy issues, and in particular issues addressed to rural energy problems as priority issues in Fiji development plans, occurred in Fiji between the writing of DP7 (1975) and DP9 (1985). The existence of subsidized pricing of electricity could have redistributive aspects as well.

Starling defines a plan as a set of measurable objectives to attain a goal, a specified means for achieving the goals of policy. Objectives in the electricity sector identified in DP8 include (1) the substitution of indigenous energy sources for imported petroleum products; (2) the elimination of subsidized pricing; and (3) the analysis of whether there are other rural investment opportunities that would better contribute to the allocation of scarce resources than electricity (see Chapter I).

A program is an ordered set of specific, interrelated actions to attain an objective. A program, in turn, may be further subdivided into projects, or tasks, each contributing coherently to a program, in support of a policy.
In the initial and final phases of the public policy cycle the program, as a whole, is under consideration. In the interim phases particular projects are appraised, implemented, sustained (ideally), and evaluated in terms of their contribution to overall program objectives guiding the policy process. In view of RE policy, these objectives are typically stated in general terms in the opening chapters of national development planning documents, and in specific terms in a later chapter devoted to the energy sector.

**Program Planning**

Phase one, (energy) program planning, includes two tasks: (A) establishing the objectives/directives/ground rules to guide the policy process; and (B) the identification of specific projects contributing to program objectives.

**Project Appraisal**

Phase two, (RE) project appraisal, includes three tasks: (A) preliminary design of the project; (B) feasibility studies; and (C) pre-project evaluation.

**Project Rejection/Selection/Finance**

Phase three, (RE) project selection or rejection, includes three tasks: (A) a review of options and objectives through the application of various decision-making criteria; (B) project selection or rejection; and (C) procurement of finance, given that the project has been selected for implementation. If the project is rejected, the process returns to phase one, step two.
Project Implementation

Phase four, (RE) project implementation, includes three tasks: (A) procurement of equipment; (B) construction; and (C) training.

Project Sustainment

Phase five, (RE) project sustainment, includes five tasks: (A) operation and simple repairs; (B) maintenance; (C) tariff collection and record keeping; (D) tariff policy supervision and accounting/auditing; and (E) load management and promotion.

Program Evaluation

Phase six, (RE) project monitoring, evaluation and refinement, includes four tasks: (A) monitoring; (B) impact studies; (C) post-project evaluation; and (D) project refinement.

Program Refinement--Starting the Cycle Over Again

Phase seven, (energy) program refinement, includes two tasks: (A) refinement of the policy and plan; and (B) research and development to support program refinement.

History of Development Planning in Fiji

The preparation of development plans is a phenomenon of the post-World War II development decades. Waterston notes that often loans from international lending agencies are contingent upon the existence of such plans. 7

The history of the preparation of development plans in Fiji is lengthy. The first four plans prepared after World War II were primarily expenditure plans. DP5 (1966-1970), the last plan during
the colonial period, was the first plan to address broader social and economic issues. The current plan, DP9 (1986-1990), is the fourth since independence, and states in the foreword by Ratu Mara, the Prime Minister, that Fiji has "come a long way since then, both economically and socially."

In comparing the most recent development plans, several trends are noteworthy. "While the over-riding objective of DP5 had been one of growth, DP6 recognized growth as a necessary but not sufficient condition for development; it was felt important to focus on the type, direction, and distribution of growth.\textsuperscript{10} Improving the distribution of incomes, including rural/urban and regional disparities, was of higher priority in DP6, DP7, and DP8 than economic growth itself. The average annual growth rates of real GDP achieved during these three planning periods were 5.8 percent, 3.8 percent, and 2.0 percent respectively, the latter failing to keep up with a population growth rate of 2.1 percent.\textsuperscript{11} The Household Income and Expenditure Survey (HIES) and other income surveys report rising GINI coefficients and other indicators of a worsening trend with respect to income distribution.\textsuperscript{12} In practice it appears that both the size and distribution of national income worsened during these planning periods. The primary emphasis in DP9 is again expanding the income pie, rather than how to divide it. A mid-1988 ADB report indicated that in the three years after DP9 was published GDP shrank by a further 2 percent, rather than increasing at the projected rate of 16 percent. In real per capita terms the picture was worse: during these three years average individual income declined by 13 percent, rather than increasing by the projected rate of 10 percent.\textsuperscript{13}
DP9 also describes the macro-economy in more detail. Other economic indicators with worsening trends, presented in graphic detail, are the budget deficit, the level of both external and domestic debt to finance the budget deficit, the investment and savings rates, the terms of trade, the balance of trade, and the balance of payments. A July, 1988, Economic Survey Mission to Fiji confirmed the seriousness of the further declines in these trends after DP9 was published in 1985.14

The earlier emphasis on income distribution focused originally on urban/rural disparities, and by DP8 had evolved into a balanced regional (defined at the provincial level) development plan necessitating the publication of volume two of DP8. A major input into this plan was the 1977 United Nations Regional Planning Project, which established a potential hierarchy of 60 Rural Growth Centers (RGC) to be established. Each RGC would have metered electricity available, as well as other social services, but complementary inputs to establishing productive uses of electricity, such as training, credit and markets, were not mentioned in the plan.15 In DP9 the RGC strategy was modified into integrated sub-regional and integrated island development plans, designed to "channel investment and general development activity into those areas which have the potential to be developed, but which have remained under- or undeveloped."16 A strategy identified in DP8, to encourage the growth of industries in rural areas, was admittedly not as successful as the shorter-term strategy of providing rural infrastructure to improve general welfare.17 Implementation of administrative decentralization commenced in 1986 with
the completion of the Fijian Administration Review, a joint Government of Fiji/East-West Center project. Administrative decentralization, in this context, is both an attempt to revive traditional patterns of decision-making, and to bring the development agenda closer to the lives of the rural people, who live with the consequences of decision-making on that agenda.

The need to increase the involvement of Fijians in the economic life of Fiji received brief mention for the first time in DP9. Historically the expatriates, and more recently the Indians and the Chinese as well, have dominated the economic scene in Fiji. The Fijians and Indians represented 46 percent and 48 percent of the population respectively in 1986, but due to outmigration and a slightly lower birthrate of the Indians, the Fijian population outnumbered the Indian population in 1989, for the first time since the 1930s. In a prophetic book written by E. K. Fisk in 1970, entitled The Political Economy of Independent Fiji, the failure to address the unequal distribution of income along ethnic lines is identified as a time bomb threatening to undo much of the effort to increase the size of the economic pie. According to Fisk, the orthodox economist view oversimplifies the situation by treating the economy as a single whole unit and the economic problem as being mainly that of increasing the national income. In fact the situation is very much more complex, there being three remarkably distinct components to the economy of Fiji, and as the demarcation between these economic components coincides in some important aspects with racial and political lines of demarcation, the distribution of income between these components is of great political and social importance. Moreover, Fiji is not a poor country by world standards, and consideration of all the facts (and not just the 'economic' ones in isolation) makes it clear that the most vital and urgent problem facing Fiji at the time of its
independence is not so much the size of its national income but rather its distribution.21~22 The issue was politely ignored in the official development planning process until it was essentially too late to prevent the shattering of the economy which followed the two racially-inspired political coups of 1987. According to Sitiveni Rabuka, who masterminded both coups, the "removal of the month-old Coalition Government [dominated by Indians] was, therefore, essential for the survival of the Fijian race. As simple as that."22

The explanation in DP9 as to why the country has experienced low, unstable economic growth is because of a growing debt-servicing burden and increasing pressure on the balance of payments. "Much of these have been caused by factors beyond Fiji's control, such as the protracted world recession, slump in commodity prices and high international interest rates. Fiji's economic problems have been compounded by natural disasters which, in recent years, have become more frequent."23 The macro- and micro-economic planning approach typical of development plans prepared in developing countries, Fiji's being no exception, has only a limited number of explanations of why economic growth never occurred as planned.

The economic and political problems of Fiji have important regional and international implications as well. Fiji was considered to have the most stable government in the South Pacific region until the events of 1987 erupted. Being small island nations with open economies, all of the countries are concerned with the effects of oil prices, terms of trade, interest rates, and world recessions on their economies. The first country in the region to get into serious debt problems was
Western Samoa in the early 1980s. According to Maiava, the Government was obviously living beyond its means, and the harshness of the fiscal medicine administered by the International Monetary Fund (IMF) had a sobering effect. Fiji was apparently following a very prudent course in investing a total of $230M of public and private capital in a major hydro-electricity project to displace petroleum imports, the size of external loans for this project dwarfing those of previous projects. Other sectors clamored for external loans as well, and almost overnight it seemed that the debt-servicing burden had reached unmanageable proportions. Political and economic instability is increasingly erupting around the South Pacific, with all of the major super powers showing interest in increasing their profiles in the region as they offer assistance of various kinds.

**Energy Sector Public Investments**

Developing countries have borrowed more than a trillion dollars from international lending agencies since World War II, in the hopes of promoting economic and social development. The leading sector in terms of the total amount of debts incurred has been the power sector. There is evidence in developed countries of a strong positive relationship between the growth in electricity consumption and income, as measured by Gross National Product (GNP) or Gross Domestic Product (GDP). Several newly industrialized countries (NICs) have also experienced a similarly positive relationship between electricity use and income growth. Major investments in the power sector have been undertaken by nearly all developing countries, in the hopes that their economies too will experience a “take-off.”
For the majority of these countries this investment strategy has not produced the anticipated results. The growth rate of GNP per capita has generally been slower in the 1980s than in the 1960s and 1970s, and in all too many cases has even become negative.  

This problem of achieving economic development becomes more acute when results from the urban and rural sectors are disaggregated. Typically per capita incomes in the rural areas seriously lag behind those of the urban areas, with ever-increasing numbers of people migrating from rural to urban areas.  

Government politicians and economists have found the task of expanding urban services and infrastructure to meet the needs of the growing population to be both difficult and expensive.

The most frequently cited justification for investing in rural electrification projects and programs is that they will catalyze the process of economic and social development, making rural areas more attractive places to live in. Rural dwellers who have visited urban areas, and admired the convenience and versatility of electricity, also tend to place political pressure on national leaders to provide this service to their locality as well.

The evidence that RE investments do indeed catalyze economic and social development is unclear, and highly debated. This point was highlighted by the ADB consultants, Smith, Mehta, and Hayes, in their 1983 report to the ADB. It cannot be assumed, in dropping off a diesel generator set, for example, to village X, that one could visit the village again in several years' time and find that the demand for lighting, and all sorts of productive uses (e.g., power tools, sewing
machines, small-scale industries), had been steady and rising merely because the power was available. Some investment projects assume merely that the savings in buying liquid fuels for lighting will pay for the project. When the villagers are unable to operate and maintain the generator set properly (as is all too often the case), the equipment may instead be destined to a short and rusty life.

Investment in RE in Fiji has followed the general pattern elsewhere of being motivated by both economic and political concerns. Investment in the power sector, in general, has been an important strategy for accelerating economic growth advocated in development plans covering the period of 1976-1990.

The energy sector began to have a role in development planning efforts after the oil price rises of 1973 sent the first such tremor through the economy. In a 1976 Central Planning Office document, Johnston noted that:

The prospect of serious balance-of-payment problems led to the establishment in May 1974 of the Alternative Fuel Technical Committee which was to report to Cabinet on possible alternative energy sources to reduce petroleum imports and conserve foreign exchange. The committee's report in mid-1975 led to the formation in January 1976 of an Energy Unit as an integral part of the Government's Central Planning Office. The Unit [was] responsible for policy formulation and implementation, research, information dissemination, encouragement of investment in preferred energy sources, overseas energy aid, and public education.34

A Ministry of Energy was established in 1981, and after the July 1982 elections merged with Mineral Resources to form the Ministry of Energy and Mineral Resources, each function being a separate department. After the reorganization the Department of Energy (DOE) was given the
task of implementing government energy policy, as well as performing energy analysis and reviewing energy policy issues. There were eight professional staff positions, four of the five most senior posts being held by expatriates. 35

By 1984 most of these expatriates had departed, and a chronic understaffing of the department continued to persist in 1988. After the second coup in 198736 the ministries were reorganized again, with Mineral Resources joining the Department of Lands, and the Department of Energy joining the Departments of Tourism and Civil Aviation in the formation of a separate ministry. In 1988 the minister in charge of energy was also the general manager of the Fiji Electricity Authority. The Permanent Secretary (number two post) was formerly the Director of Tourism and the Director of Rural Development. Nearly all posts were vacant by 1980, and due to the budget squeeze there were no plans to fill them.

The United Nations Pacific Energy Development Programme (PEDP) was formed in 1983, and is located in Suva, the capital of Fiji. The present Project Manager of PEDP was formerly the Director of Energy in Fiji. This agency is capable of in-depth analysis of energy sector problems and prospects, and has given a welcome boost to the energy planning resources of the Government of Fiji.

According to DP8, the targets set in DP7 for the energy sector were only partially met. An autonomous statutory body, the Fiji Electricity Authority (FEA), expanded considerably with the implementation of the Monasavu project, the largest in Fiji's history. A major concern in DP8 was the failure to achieve targets in the rural energy
sector, although rural electrification targets, especially in terms of grid extension, were partially met.

Five years ago the Alternative Fuel Technical Committee identified transport, large-scale power generation, and small-scale rural energy supply as major areas of concern and advised a gradual reorientation toward conservation and development of indigenous energy resources. Since then insufficient effort has gone into identifying detailed options and developing a cohesive national energy policy. Efforts to expand supply should not be the major concern of Government. There is little evidence that energy consumption is closely correlated with the quality of life. A decrease in the volume of petroleum imports during the DP8 period is both desirable and achievable. It will require a high level of investment, significantly strengthening energy planning capabilities, and a determined use of the price mechanism to reduce consumption and increase the efficiency of energy use.37

The concerns in the electricity sector were pricing, the substitution of indigenous energy sources for imported petroleum products, and the analysis of whether there were other rural investment opportunities with a bigger bang for the buck than electricity. Pricing policies were to be implemented which would ensure the financial viability of the FEA and discourage wasteful consumption patterns. When DP8 was published in 1980 there was a tendency to assume that the major jumps in oil prices in 1973 and 1979 would be repeated in the 1980s. Large amounts of money had already been borrowed for a major hydro-electricity project, but when further oil price rises failed to materialize in the 1980s plans for a gasahol project similar to the one in Brazil were called off. In terms of rural investment, it was mentioned in DP8 that electricity is a high-quality flexible energy source with a wide range of potential uses. It cannot, however, be justified as a source of lighting solely on economic
criteria alone. There may well be other rural investment opportunities with more impact on the quality of life per dollar invested. During DP8 the costs and benefits of rural electrification will be reviewed, anomalies between the PWD (Public Works Department) and FEA programmes resolved, and subsidy levels reviewed. 38

In 1975 electricity supply was very unevenly distributed. It was available to 70 percent of urban and peri-urban households, 19 percent of rural settlements, and 2 percent of rural villages, where the majority of Fijians live. 39

The rural energy problems of improving cooking and lighting facilities were discussed in more detail. Electricity for lighting was subject to the above-mentioned caveat, and electricity for cooking was ruled out on the grounds of poor thermodynamic matching between supply and end-use.

Energy sector problems put Fiji in a double bind.

Like many less-developed countries, therefore, Fiji faces the double financial burden of paying for an increasing volume of increasingly expensive oil imports in the short run while acquiring the capital investment funds needed to develop alternative indigenous sources in the long run. All of the options are expensive (including the option of inaction) and all choices have long term implications. Many energy decisions made during the Plan period will have no significant impact for five years or more but will have an effect on Fiji for many years. 40

When finally completed in 1983, the Monasavu hydroelectric scheme had taken ten years to develop from the earliest Enex studies to the commissioning of Phase One.

Specific sectoral objectives arising from overall national objectives were:
a) generation of an improved sectoral data base and a dynamic national energy accounting system;
b) reduction of the volume of imported energy per unit of GDP;
c) evaluation of the suitability of existing petroleum legislation to Fiji's needs;
d) increased investigation of, and where appropriate investment in, indigenous energy resources for transport, electricity generation, and household use;
e) improved standard of cooking, lighting, and other rural household energy needs; and
f) preparation of a package of fiscal and price measures to manage energy demand.

The above goals were seen in the context of the following longer-term strategy:
a) diversification of sources of energy supply;
b) minimization of petroleum imports consistent with overall development goals;
c) investigation and development of indigenous energy resources;
d) control of unnecessary growth through careful matching of supply to end-use demand in scale, location, and energy quality; and
e) avoidance of imported energy-intensive development strategies.41

Eleven projects were identified to achieve these objectives, costing a total of $46M over the Plan period. Government grants and interest subsidy for the first two phases of the Monasuvahydro-electricity project would cost $11.5 M, rural electrification a
further $4.2M, and alcohol fuel development $21M (projected but not spent). Energy planning was allocated between $50,000 and $85,000 per year, in declining amounts. External loan conditionality dictated a 7:3 loan equity ratio in FEA's portfolio, necessitating a total of $46M in grants to this statutory body by the government during the DP7 and DP8 periods; $2.5M of the $4.2M allocated to the PWD program would be spent on micro-hydro schemes, and the remainder on community schemes. PWD was allocated an annual budget of $0.25M to install approximately 20 diesel plants per year in rural villages and settlements.42

Objectives and strategies for the energy sector outlined in DP9 were essentially the same as in DP8. The main difference was that there was no specific mention of the rural energy sector other than the need to accelerate the RE program, including maximizing the utilization of FEA electricity, and a possible shift of the PWD component to the Department of Energy. During the first four years of DP8 PWD installed 52 diesel plants, while FEA connected 9,590 rural households to the grid.

The projected price tag for this "rural energy equals rural electrification" program was high. Of a total projected expenditure of $190M for seven energy development programs during the DP9 period, $150M would be spent on FEA capital investments, $18.5M on separate RE schemes, using local renewable energy sources where economically viable, and $1.1M on energy planning. The capital component of the $18.5M RE program was projected at $13.5M. It is unclear if the remaining $5M would be allocated for associated recurrent expenditures. Of particular importance to this study is the DP9 statement that "an ADB
funded project to study long-term technical, economic and financial viability of rural electrification was completed in 1984. The recommendation of this report will be implemented in DP9.43

Bureaucracy Relevant to the Public Policy Process in the Energy Sector

Earlier in this chapter, the public policy process was presented in a generalized format. In this section, the details of this process are reviewed, first for all sectors of the public policy process in Fiji, assuming that there is a rural Fijian component, and then for the energy sector in particular.

In Figure 4.3, a structural chart of the government ministries and committees, as well as relevant agencies, councils, etc. shows that five ministries, at a minimum, are involved in decision-making about rural village projects. These ministries are:

1. The Office of the Prime Minister,44 which oversees the Cabinet.45 Cabinet, in turn, oversees the Development Subcommittee,46 the Budget Coordinating Committee,47 and the Macro Economic Sub-Committee;48

2. The Ministry for Economic Planning and Development, which oversees the Central Planning Office;49

3. The Ministry of Finance,50 overseeing both the budgeting process and the Bureau of Statistics;51

4. The Ministry of State for Rural Development,52 which oversees the local system of government for both the Fijian and the Indian ethnic groups;
Figure 4.3. Fiji Government Ministries and Other Public Bodies Relevant to Rural Electrification Public Policy Process
5. The Ministry for Fijian Affairs shares responsibility with the Ministry of State for Rural Development in overseeing the Fijian Administration (FA). The FA is a seven-tiered system through which project requests at the village level can eventually receive consideration, and in some cases funding, at the national level.

The Central Planning Office (CPO), within the Ministry for Economic Planning and Development (MEPD), has an important planning role in the public policy process. This planning role is shared with other government agencies through the important forums of the Budget Coordinating Committee (BBC), the Development Sub-Committee (DSC), and the Cabinet.

The Central Planning Office is primarily responsible for national and regional social and economic development planning, and policy advisory functions. The CPO formulates (1) the Five Year Plans; (2) recommendations relating to development issues; and (3) appraises requests for allocations of national resources to new projects. This involves long-term macro-economic planning and forecasting, sectoral and regional planning, annual reviews of Plan implementation, project planning and appraisal, and general coordination, as a type of secretariat, for the above-mentioned planning bodies. The CPO has four units that assist with the preparation of the overall development plans (FYPs), and specific projects to achieve the objectives of these plans: (1) the Macroeconomic Planning Unit (MPU); (2) the Sectoral Planning Unit (SPU); (3) the Regional Planning Unit (RPU); and (4) the Project Planning and Evaluation Unit (PPEU).\textsuperscript{52} The latter unit is particularly relevant to this research.
The Project Planning and Evaluation Unit is essentially concerned with the functioning of the project planning system, rather than project preparation itself: Its main functions are to facilitate, coordinate, appraise, and package projects. Its main duties are to (1) coordinate the CPO input into the Design List, including liaison with the MESC on projected capital items in the budget; (2) package projects seeking aid funding; (3) evaluate on-going sectoral projects; and (4) provide an overview of the performance of the project planning system as a whole, and within specific government agencies. In 1984 the PPEU had three subdivisions, concerned with economic production sectors, infrastructure sectors, and social/community services. The head of the PPEU is charged with receiving all consultant reports and studies, and ensuring that they are thoroughly appraised.53

The project planning cycle, as described in Systems and Procedures for Project Planning in Fiji, has six "technical" stages. These stages are guided by development planning objectives, that in turn guide programs (i.e., aggregates of projects). These stages, as well as the government agencies responsible at each stage, are described as follows in A Guide to Project Planning in Fiji: (1) identification (CPO, operational agency, and "people," as represented by the local government structure); (2) design (operational agency); (3) screening (CPO, MOF, PSC); (4) appraisal (operational agency does technical appraisal, CPO assists in market and economic appraisal, MOF/CPO assist in financial appraisal, and PSC assists in management appraisal); (5) monitoring (operational agency does physical monitoring, MOF does financial monitoring, and CPO sometimes does both); and (6) evaluation
(either a multidisciplinary/multiagency internal team, or a similar external team, made up of either locals or expatriates).54

"Rural" is as important an aspect of "rural energy" concerns as "energy" is. For this reason, early contact was made with the Ministry of State for Rural Development (MRD).

The staff was predominantly Fijian, and had an intimate knowledge of both the development planning process at all levels of government, as well as village conditions and problem areas. Staff of the MRD arranged for my participation in meetings at the national, divisional, provincial, district, and village levels.55

The MRD is assigned the responsibility of (1) creating the necessary economic and social environment that will stimulate and strengthen rural community development efforts; (2) providing an effective institutional framework for consultation, cooperation and involvement at the community level; (3) coordinating the efforts with existing agencies in rural areas at the most appropriate decentralized level; (4) stimulating rural communities to seek their own improvement; (5) offering advisory, technical, and financial or other material assistance; and (6) involving the rural communities more closely in the preparation and implementation of the rural sector of the National Plan.56

One important role of the Ministry of Rural Development is to coordinate the implementation of self-help projects based on funding from foreign aid and grant sources. RE projects based on the use of alternative technologies to grid-based or diesel-fueled electrification frequently rely on aid or grant money to establish the viability of a particular technology alternative in the local context.57
As part of the "self-help" approach to development within the MRD, both local and foreign aid and grant funds are secured for the purpose of assisting rural people in the implementation of village-based projects, including RE, water supply, housing, community hall, and sea wall projects. In 1983, in the Eastern Division, 34 such projects were completed, 25 percent of the total expenditure of $90,547 coming from community contributions, and the remainder from the MRD (including an unspecified amount from foreign aid sources). The 1985 MRD Annual Report stated that government funds had been applied to self-help projects "such as rural electrification because it is hoped that such projects would, apart from uplifting the quality and standard of living of the recipients, stimulate other income-generating projects and activities."60

The Rural Development administrative structure involves two parallel, but separate administrative structures at the provincial and local levels. From the grass-roots level of the Fijian village, concerns are articulated in a "bottom-up" manner through the following forums: (1) village (koro) council; (2) district (tikina) council; (3) provincial (yasana) council; (4) district development committees; (5) divisional development committees; (6) development subcommittee (the DSC is composed of permanent secretaries of the various ministries); and (7) Cabinet, which is a policy body composed of government ministers, and advised by the executive branch. Parallel with the district development committees are the district teams, composed of district officers and other district-level officials from each of the ministries represented in the Cabinet. Likewise, the divisional
teams, composed of the divisional commissioner and divisional heads from each of the ministries, parallel the divisional development committees, and report to the DSC.61

The Ministry for Fijian Affairs continues to have a very close working relationship with the Ministry for Rural Development. The structure of the Fijian Administration guides the upward and downward flows of communication within both ministries, although the MRD also deals with communication flows relating to rural development concerns of non-Fijians as well.

Additional responsibilities of the MFA, with regard to the Fijian people are (1) to facilitate input from the Great Council of Chiefs into the public policy process via the Governor-General (and Parliament); (2) to hold regular meetings of the Fijian Affairs Board (FAB), with the purpose of advising the Minister, the GCC, and the Provincial Councils on "questions relating to the good government and well-being of the Fijian people";62 (3) to ensure the smooth running of the 14 Provincial Councils, whose members also actively participate in meetings of villages, islands, districts, and various committees, and in some cases are members of the GCC as well; and (4) to oversee the operation of its statutory bodies, including the Fijian Affairs Board (FAB), the Native Land Trust Board (NLTB), and the Native Land and Fisheries Commission (NLC), which are entrusted with the administration and preservation of communally-owned Fijian land.63

Knowledge of the public policy process, with a view to the concerns of rural inhabitants of the Eastern Division of Fiji, implies a knowledge of the functioning of both ministries. As ministries within
the modern system of government, yet based on traditional structures of decision-making, the MRD and the MFA serve, on one hand, as the crucial linkages between traditional and modern approaches to identifying and solving problems in rural areas. On the other hand, these ministries are the focal point of a basic dilemma facing the Fiji government at present, namely that of accommodating, simultaneously, opposing value systems within a single system of government.

Efforts to collect data at the provincial and district level were coordinated by the Ministry of Rural Development and the Ministry of Fijian Affairs, through the administrative structure of the Fijian Administration.

As a system of local government for Fijians, the Fijian Administration is "empowered by law to organize some of the activities of the Fijian people for their own social, economic and political development as well as for the preservation of their traditional way of life."64 The FA was created by the first British governor in 1875, with the aim of organizing Fijian Affairs and giving the Fijians a part in their own administration, as well as cutting costs in administering the far-flung colony.65 This system also allowed the British to keep the affairs of the Indian immigrants separate from those of the Fijians, in an effort to better control both groups.

The FA system was overhauled by the late Ratu Sir Lala Sukuna in the first half of this century, culminating in his appointment as the first Secretary of the Fijian Affairs Board. He gave the traditional governing system official recognition within the modern system, as a step towards self-governing status. In 1947 he wrote
that "each province is really a separate Native Administration each having its own council as the general governing body, its own courts, treasury and executive officers." Nayacakaiou further commented that

... in its original conception the Fijian Administration was an application of the principle of Indirect Rule to the administration of Native Affairs with the hope of developing a modern political organization by building on the old institutions ... the Fijian Administration has failed to develop into this kind of institution, with the result that it continues to be seen in terms of the chiefly system.67

In the 1960s (after Ratu Sukuna's death) the system was overhauled again, this time based on the advice of foreign "experts." McDougall recommended discouraging those Fijian customs which he felt constrained economic, social and political development. Spate, Belshaw, and Burns likewise saw the FA as an archaic hindrance to (modern economic) development, lacking in "democratic" principles based on the individual and central to liberalism, capitalism, and the orthodox world view.68

The 1968 restructuring of the FA eliminated the traditional court system (based on the buli, or Fijian Judiciary), and re-oriented the apex of the FA from the Great Council of Chiefs (GCC) to the modern governing system. The modern legal system failed to fill this void, and by the late 1970s forums at the provincial level were officially blaming social breakdown at the village level on the abolition of the Fijian Judiciary. A senior counsel with the Director of Public Prosecutions Office spoke of "a vacuum in the administration of justice in remote and outlying islands...(that) has brought to life a number of offences that had never been committed before."69 The changes generally threw people off balance, and contributed to disorder, including nonpayment of taxes and disorderly conduct.
In the mid-1980s an attempt was begun to restructure the FA again, this time in a three-pronged approach aimed at (1) reviving the concept of the Fijian Judiciary; (2) increasing the importance of the village, district and provincial levels as forums for input into the modern decision-making system, and (3) similarly ensuring that the views of the apex, the Great Council of Chiefs, as well as the foundation of the traditional Fijian governing system, were well-aired during various stages of the public policy process.\textsuperscript{70}

In Figure 4.4, a structural chart of the ministries, departments, agencies, etc. relevant to energy sector projects indicates that within two ministries considerable experience exists in implementing RE projects, while four other ministries collect useful background information at the village level.

The two ministries with experience in RE projects are:

1. The Ministry for Energy and Mineral Resources, which oversees the Department of Energy, and the Fiji Electricity Authority; and

2. The Ministry for Communications, Transport and Works, which oversees the Public Works Department and the Posts and Telecommunications Department.

Four ministries collecting useful background data at the village level are:

1. The Ministry for Health and Social Welfare;\textsuperscript{71}
2. The Ministry for Education;\textsuperscript{72}
3. The Ministry for Primary Industries;\textsuperscript{73} and
4. The Ministry of Cooperatives.
Rural Electrification Technology Candidates

- Ministry for Energy and Mineral Resources (MEMR)
- Department of Energy (DOE)
- Fiji Electricity Authority (FEA) (statutory body)
- Ministry for Communications Transport and Works (MCTW)
- Public Works Dept. (PND) & Communications Dept.--RE projects in areas inaccessible to FEA (all but Levuka in E. Division)
- Ministry of Cooperatives (MOC)
  1) Information on feasibility of coconut oil as a diesel substitute
  2) Information on commercial activities at village level

Background Data on Rural Villages

- Ministry for Health and Social Welfare (MHSW)
  Detailed village profiles
- Ministry for Education (ME)
  University of the South Pacific (USP)
  Institute of Natural Resources (INS) (research visa and office space)
- Ministry for Primary Industries (MPI)
  1) Village Level Data
  2) Chief Economist--information on project planning process
  3) Dept. of Fisheries--loan of vessel for fieldwork

Figure 4.4. Fiji Government Ministries and Agencies Relevant to Activity of RE SCBA
The Department of Energy (DOE), within the Ministry for Energy and Mineral Resources (MEMR), was established in 1982, and was intended to have a coordinating and overall energy sector planning role, as well as responsibilities during the actual implementation phases of projects. As mentioned in Chapter II, the FEA is a statutory body, under the jurisdiction of the Department of Energy. The ability of the DOE to realize its planning and coordinating role has been constrained by several factors, including the following: (1) a chronic problem of understaffing; (2) a high turnover rate, due to the significant number of expatriates in top positions; and (3) budget problems.

At the time of arrival in Fiji for fieldwork, in August of 1983, I realized that most of the senior staff of the DOE would have departed Fiji before completion of my fieldwork in August of 1984. For the sake of both continuity and comprehensiveness in data collection, it was considered important to establish working relationships with other ministries relevant to the planning, evaluation, financing, and implementation of rural electrification projects.

Staff of the DOE were helpful in providing information on (1) activities of the ADB consulting team from TATA in Bombay, India; (2) a consultancy in progress involving the use of household interviews in five areas of Fiji to establish baseline data for planning hydroelectricity projects; (3) other previous and planned consultancies relevant to planning hydroelectricity and rural energy projects; (4) planning and implementation activities involving solar photovoltaic projects; (5) efforts to evaluate other alternative technologies for electrifying rural areas, including biomass/steam and coconut oil
as a diesel substitute; and (6) other rural energy concerns, including efforts to meet the need for improved designs of wood-fueled cooking stoves.

The Department of Public Works (PWD), within the Ministry of Communications, Transport and Works, is responsible for the implementation of RE projects based on the technology alternative of diesel-fueled generator sets. This technology is considered for areas inaccessible to the Fiji Electricity Authority, which includes all of the Eastern division (with the exception of the town of Levuka on the island of Ovalau).

During the period of 1978 to 1984, thirty RE projects were implemented in the Eastern Division by the PWD. Another ten projects were implemented in 1984. The PWD RE staff consisted of approximately 12 members, trained as engineers, surveyors, electricians, or mechanics ("fitters"). The senior engineer was an expatriate, and the majority of the remaining staff was Indian. The population of the areas to be electrified was Fijian.

After many visits to the PWD RE office in the capital city, a review of annual reports submitted by the PWD to Parliament, and visits to nearly all of the villages in the Eastern division electrified by the PWD, a number of problems were noted. The most significant problems included: (1) the general disarray of files on RE projects and associated expenses, including the disappearance of most of the expenditure data for the years 1980 and 1981; (2) the failure to disaggregate "rural" electrification expenditures from the total of expenditures for electrification purposes, including maintenance and repair of wiring in government buildings, etc.; (3) the lack of an
official training program for village operators of RE equipment; (4) language problems in communicating with villagers during the implementation phase, especially during (brief) attempts to explain basic preventive maintenance measures to be followed; (5) the failure to provide equipment operators with engine or generator manuals, tools, or guidelines on basic operating data to be recorded; and (6) the significant logistics problems in both installing and repairing generator sets. The practical result of the above-mentioned problems was a pattern of utilization of RE equipment which was far below that of assumptions made for policy analysis purposes. Neither the PWD nor the villagers possessed written records to document actual operating patterns, necessitating an in-depth study at the various locations of the deployed RE equipment to better evaluate these patterns.

The Ministry of Co-operatives (MOC) provided information relevant to investigating the use of coconut oil as a diesel fuel alternative in generator sets. The MOC was also a source of information on the "commercial sector" in the outer island context, as cooperatively-run village shops were typically the only commercial establishments in most villages visited during fieldwork.78

There are two coconut oil mills in operation in the Eastern Division. Both are in the Lau Province (on the islands of Lakeba and Vanuabalavu), and are operated by cooperatives which receive technical and financial assistance from the government. The main purpose in working with these two cooperatives was to establish a data base and structure from which price comparisons could be made over time on the relative prices of coconut oil (free on board price) and diesel fuel (charged in full, landed price). This exercise led
to consideration of a number of factors that ultimately affect prices, such as technical, accounting, and management aspects of the running of these two oil mills.

Although there are only two cooperatives in the business of running coconut oil mills, the apex cooperatives in each of the island groups were generally interested in establishing commercial activities other than the traditional retail activities. In these cases the provision of electricity to energize production, leading to wholesaling, as well as retailing activities, served as the focal point of discussions I had with the managers of these cooperatives.

At many of the ministries visited, planning data about a particular village in the Eastern division consisted of colored pins stuck into a map, connected by strings, and mounted on fibreboard in the offices of the planning director for the Eastern Division. This situation of having to decipher pins and strings, while trying not to interrupt the work of the director using the office, was repeated many times during the fieldwork period (most memorably at the DOE, PWD, MOH, and MRD offices). This process of collecting planning data, before setting off for the outer islands, was time-consuming and generally difficult.

Early on during fieldwork I recognized the need for a more efficient method of disseminating and sharing planning data between government agencies. I also assumed that the offices of the Fiji government would eventually be computerized (this process was well under way by 1989), especially considering the high visibility that such aid-giving efforts have for foreign governments. With this in mind, a village-based, cross-referential and computerized data base
system was designed, based on inputs from each of the ministries discussed in this section.

The presentation of this extensive data base is not particularly relevant to the theoretical discussions this thesis centers on. Considerable effort was, nonetheless, expended on constructing (and reconstructing, after several computer-related disasters hit) this data base, for eventual presentation to the government.

Public Investment, Income Growth, and External Indebtedness Patterns

In Fiji's case, significant investments at the national level have been made in electrification in the past two development decades, yet GNP growth has leveled off, and even declined, in real terms. Graphic presentation of patterns in Fiji's economic indicators (Y), and external indebtedness that contributed to these investments (X), casts doubt on the "If X, then Y" model of development.

In Figure 4.5, the "Y" pattern is graphically portrayed. Two economic indicators, GNP and exports of goods and services (XGS), are charted in real terms for the period 1970 to 1987. The general pattern of both indicators is steady, positive growth during the first development decade, and flat or negative growth during the second development decade. Exports of goods and services are only one component of GNP calculations, and the significant gap in absolute terms between XGS and GNP in the graph is partially attributable to injections of borrowed foreign capital into the economy.

These injections of foreign capital, to the extent that they contribute to the "X" pattern of investment in development, are
Legend: GNP Gross National Product  
XGS Exports of Goods and Services


Figure 4.5. Fiji Economic Indicators
graphically portrayed in absolute terms in Figure 4.6. The total external debt (EDT) is disaggregated, and the long-term, public and publicly guaranteed debt (DOD) is distinguished from both public debt owed to official creditors, and private sector debts. The increase in DOD was gradual until 1979, and rapid from that point on, with the exception of a slight decline in 1983. Although data on the total external debt, and the role of private sector debt in EDT were only available from 1980 onwards, these data are sufficient to establish that private sector debts play a minor role in comparison with public debts in the total picture of external indebtedness. The total public debt service (TDS), and the interest component (INT) of TDS, are also depicted in Figure 4.6. In both cases the growth rate was positive but relatively flat during the first development decade, and increased at a more rapid rate during the second development decade.

In Figure 4.7, growth patterns associated with Fiji's economic indicators and external debt statistics are indicated. In this figure the absolute data from Figures 4.5 and 4.6 are graphed on a logarithmic Y-axis for the purpose of roughly indicating patterns of positive, flat, or negative growth. Figure 4.7 indicates that while all of the development indicators have experienced positive growth since independence, only GNP, exports of goods and services, and private investment have experienced negative growth during the second decade of independence. The growth of long-term public debt (DOD and OC) was very rapid during the 1970s, tapering off during the 1980s. The growth of public debt owed to the World Bank, as well as total public debt-servicing and interest payments, were especially rapid during
Figure 4.6. External Debt of Fiji

First Decade of Independence

Second Decade of Independence

Figure 4.7. Patterns of Change of Economic Indicators and External Debt of Fiji

*Logarithmic Y-axis

the DP8 period, the latter two tapering off somewhat during the DP9 period as borrowing from the World Bank continued to escalate. Whereas GNP and debt curves were far apart at the time of independence, they grow ever closer as the "development" process continues.

In Figures 4.8 and 4.9, "principal ratios" of external indebtedness are charted. These ratios have become a topic of special interest to the international lending agencies, since the advent of the "debt crisis" as a national and international level phenomenon in the 1980s. These ratios are carefully assessed by bankers in the process of determining the creditworthiness of a particular nation.

In Figure 4.8 ratios are charted between the absolute volumes of external indebtedness (EDT and DOD), on the one hand, and national wealth (GNP and XGS) on the other hand. Public debt (DOD) data are available for both development decades, and the ratio of DOD as a percentage of both XGS and GNP gradually increased during the first decade, and rapidly increased during the second decade, with the exception of slight decreases in 1983 and 1985. All four ratios (EDT/XGS, DOD/XGS, EDT/GNP, and DOD/GNP) more than doubled during the 1980-1987 period. The EDT/XGS ratio is of particular concern, as it rapidly approaches 100 percent, i.e., a situation in which the level of Fiji's external indebtedness is nearly equal to total annual earnings from the export of goods and services.

In Figure 4.9 a relationship is graphically illustrated between, on the one hand, wealth that entered the national economy (GNP and XGS) in one year, and, on the other hand, wealth that exited the national economy (TDS and INT) during that same year. The growth rate of this ratio of outgoing to incoming national wealth is relatively
Figure 4.8. Principal Ratios of Fiji's External Indebtedness: Total External Debt (EDT) and Disbursed and Outstanding Debt (DOD)

Legend: EDT Total External Debt
DOD Public Debt Outstanding and Disbursed
XGS Exports of Goods and Services
GNP Gross National Product

Figure 4.9. Principal Ratios of Fiji's External Indebtedness: Total Public Debt Service (TDS) and Total Public Interest Payments (INT)

Legend: 
TDS Total Public Debt Service
INT Total Public Interest Payments
XGS Exports of Goods and Services
GNP Gross National Product

flat until 1975, increases gradually for the remainder of the decade, and increases rapidly during the 1980s. The ratio of total public debt service to exports of goods and services (TDS/|XGS|) was 12 percent, a figure still below the World Bank benchmark of 20 percent whereby a nation's "seal of creditworthiness" may be in jeopardy. The sharp rise in this ratio indicates, nonetheless, that an ever larger chunk of national wealth is being spent on debt servicing each year. To the extent that wealth spent on debt servicing is at the expense of wealth spent on further investments in GNP growth, a heavy debt-servicing load could have the undesired effect of retarding future growth prospects.

The likelihood of this phenomenon of negative net transfers (implying that total debt service payments exceed gross inflows, and that net real resources are being transferred from the economy) occurring is not idle speculation. The World Development Report 1989 reports that, in the aggregate, all of the developing countries in the world had a positive net resource transfer of $358 in 1987, and a negative net resource transfer of $388 in 1988.79

From 1979 until 1983, the largest single development project in Fiji's history was in the implementation phase. During Phase I of the Monasavu hydroelectric project there was a large injection of borrowed capital into Fiji's economy. In terms of the changing patterns discussed above, the 1979/1980 and 1983/1984 periods stand out as periods of significant change.

The precise role of energy sector debts in relation to total external debts is difficult to determine. The main reason is that the FEA, which has incurred the majority of external debts guaranteed by the government in the energy sector, closely guards information on debts it has incurred. Each year the FEA publishes a brief annual
report that is available for public consumption. More detailed information is in the annual board reports, but these reports are not publicly available.  

Earlier reports, such as the 1977 and 1978 annual reports, were much more informative than more recent reports have been. In 1977, offshore loans were detailed from both private and public sources, including a total of $1.5M from firms involved in civil works construction of the Monasavu project, $1.7M from the Commonwealth Development Corporation (CDC), and $4M from the ADB (in a total of nine different developed country currencies). In the 1978 report it was also mentioned that FEA had received a capital grant of $5.6M from the government. In the 1983 ADB TA proposal to the GOF for a RE study, a few further details on FEA loans are available: two World Bank loans of $15M each, and a third World Bank loan of $16M, co-financed by ADB, were included in the Monasavu investment portfolio. By 1985 FEA had borrowed a total of $302M for operations and power development ($171M locally and $131M offshore).  

By 1984 there was evidence of strain in the servicing of external debts, on the part of both the government and the FEA. In terms of the national economy, $53M in debt-servicing consumed 10 percent of all export earnings in 1984, climbing to 12 percent within three years. In terms of the FEA budget, interest payments accounted for 9.7 percent of total FEA expenditures in 1978, and 47 percent of total FEA expenditures in 1985. In 1984, total debt-servicing on the part of FEA was $30M ($10M principal repayment and $20M interest). It is unclear what the comparable figures in later years were, as the reporting format continued to change, in general lacking both clarity
and consistency. In the 1985 report it was, however, mentioned that FEA incurred a net loss of $2.7M due to adverse movements in foreign exchange rates. A major portion of the Authority's long term debt is in the form of overseas loans from international lending agencies. These loans are denominated in a variety of currencies. As a result of these borrowings the unrealised loss on foreign exchange stood at $13,222,328 at balance date, compared to the unrealised gain of $1,913,250 recorded in 1984. Due to various factors, including adverse movements in foreign exchange rates, (FEA) was not able to meet the debt/equity ratio of 75:25.

By 1983 the government had provided grants of $54M "to improve the FEA's equity base. Therefore, FEA is expected to adequately comply with the Bank's financial covenants of a rate of return of at least 8 per cent a year on revalued fixed assets in service and a debt/equity ratio of a maximum of 75:25." The reason that the government backed the Monasavu investment in the first place was because of projections of foreign exchange savings due to a 20 percent reduction in oil imports, translating into potential savings in 1985 of $13.8M (assuming a 3.3 percent per year increase in the price of oil). Unforeseen was the actual decrease in the price of oil in real terms by 1988.

Although the attraction of investment in an indigenous energy source to replace oil imports remains, the self-sufficiency argument loses its sweetness when the foreign exchange needed to service the investment loans exceeds the amount that would have been spent if oil were brought instead. Investment projections for hydroelectricity in Fiji are reminiscent of nuclear industry investment projections in the United States. In the beginning it was envisioned that electricity
generated from nuclear energy would be "too cheap to meter." Now that the cost ledger has begun to attain as much realism as the benefit ledger, the picture looks quite different. All utilities in the U.S. have indefinitely postponed further nuclear investments. Being a small country, Fiji is already locked into this one major investment. No matter how dear the debt-servicing becomes, FEA and the government no longer have the option to not buy (cheaper) oil if foreign exchange scarcity continues to exert considerable pressure on the economy in general.

Investment in a large-scale hydroelectricity project was considered to be a clear-cut case during the project analysis phase: investment in rural electrification has never been a clear-cut case. The Monasavu lesson suggests extra caution in the case of further electricity sector investments.

*History of Use of Social Cost-Benefit Analysis (SCBA) as a Policy Analysis Technique*

**Developed Countries (DCs)**

The origin of SCBA (also called benefit-cost analysis in the literature, with "social" designating CBA done from the government's point of view) dates back 50 years ago to water-resource project analysis done for the U.S. federal government. By the 1950s the general principles of economic analysis, as they were applied to the formulation and evaluation of federal water-resource projects, were codified in the "Green Book." The authors of this book drew on the then-emerging field of welfare economics as a theoretical base.90
By the 1960s SBCA applications had spread to other sectors and other countries. The other sectors where SCBA was applied included urban planning, highway transportation, and environmental quality management. These efforts placed a greater emphasis on the evaluation of amenities or technological externalities, and regional economic development objectives. The United Kingdom was the first developed country (DC), outside of the USA, which made extensive use of the SCBA technique.

In the 1960s the use of SCBA was also broadened to accommodate distributional, as well as efficiency issues, and situations of unemployment and underemployment. Since the 1960s equity, as a valuation perspective, has had many applications in post-industrial societies. The explicit weighting of net benefits by income class, region, etc., presupposes a well-developed tax system and reliable income data: this valuation perspective has typically been difficult to apply in the developing countries, where these conditions rarely exist.

Less Developed Countries (LDCs)

In the 1970s SCBA applications were extended to the developing country context. By the 1980s the use of SCBA was more prevalent in LDCs than in DCs. This pattern was the result of the importance of public investment projects in the economic development plans of the LDCs, and the considerable role of the international lending agencies in these projects. International lenders not only insisted on the preparation of development plans, but also on systematic financial and economic project analysis, as a precondition to loan approval.
Investment planning techniques dealing with efficiency, income distribution, unemployment, and foreign exchange issues were developed by UNIDO (Guidelines for Project Evaluation in 1972; and Guide to Practical Project Appraisal: Social Benefit-Cost Analysis in Developing Countries in 1978), Little and Mirrlees (Project Appraisal and Planning for Developing Countries in 1974), and Squire and van der Tak of the World Bank (Economic Analysis of Projects in 1975). The Little and Mirrlees method established separate objective functions for efficiency and growth, with a higher a priori weighting of net benefits to higher income groups (the savers) and government. The UNIDO Guidelines left the weighting on economic growth to government decision-makers. The World Bank method allowed for equity, as well as efficiency and growth as valuation perspectives, with a priori higher weighting of net benefits to low-income participants and government.

In the 1980s there was a further proliferation of SCBA manuals for practitioners in developing countries. In 1980 Qayum wrote Social Cost-Benefit Analysis. In 1982 the Commonwealth Secretariat prepared a SCBA manual for the small-island, developing country context (A Manual on Project Planning for Small Economies). Throughout the 1980s numerous economists associated with the World Bank (e.g., Gittinger [1982], Economic Analysis of Agricultural Projects), the ADB (e.g., Nitin [1985], Economic Analysis of Power Projects), and other international lending agencies expanded on the more general techniques developed during the 1970s, for use in project analysis relevant to a specific sector. The "economic analysis" guides that resulted from these efforts have been used as manuals at training institutions associated with the banks, e.g., the World Bank's Economic Development
Institute (EDI). In this way, government officials of member countries involved with the evaluation and implementation of development programs and projects have come to associate the terms "SCBA" and "economic analysis" with these agencies.

The project appraisal (PA) manuals described above are intimidating to the average developing country practitioner. There was a need to both simplify, and to make "user-friendly," the project appraisal techniques necessary to prepare public investment projects for consideration by government decision-makers and lending/aid agencies.

Computerized Project Analysis (COMPRAN), written primarily by economists, evolved as a response to this need. Two problems in the LDC development planning context were identified in the introduction: (1) the subjective, intuitive aspects of the project definition and evaluation in LDCs; and (2) the over-reliance on outside "experts," whose work "is of questionable value for the simple reason that it (is) premature, poorly defined, lack(s) proper incentives, or (is) inadequately coordinated. Between the extremes of subjective project evaluation and the employment of outside problem-solvers lies the domain of good in-house project analysis," which is characterized by its "systematic nature and recognition that successive iteration and elaborations are necessary." 101

The use of SCBA in the power sector was not only advocated by the international lending institutions, but also by numerous aid agencies. The U.S. Agency for International Development (USAID) took the lead in this respect. 102

The technique of SCBA, like its relative, CBA, has become a pillar of policy analysis, as performed by international lending agencies
such as the ADB and the World Bank. Economic Analysis of Power Projects (ADB Economic Staff Paper No. 24), Social Cost-Benefit Analysis: A Guide for Country and Project Economists to the Derivation and Application of Economic and Social Accounting Prices (IBRD Staff Working Paper No. 239), and Economic Analysis of Agricultural Projects, written by a World Bank analyst, are just a few of the many publications by these lending agencies which explain in considerable detail how to perform SCBA relevant to a particular sector of development.

In the ADB example of economic analysis methodology, the basic objective is an approach that is "theoretically justifiable" and "operationally feasible." In the "correct" definition of project benefits and costs, border prices are used, once project boundaries have been clearly defined. The valuation principles differ in determining the benefits (and costs) accruing to (1) the power supply enterprise and (2) the consumers. The Economic Internal Rate of Return (EIRR) is emphasized more than other analytical techniques, such as the Financial Internal Rate of Return (FIRR), and Least-Cost Analysis (also known as Cost-Effectiveness Analysis). A general set of procedures developed for the use of SCBA in the power sector are considered applicable for use with generation, transmission, and distribution aspects of urban-based projects, as well as rural electrification projects.

Actors on the Development Bank Stage

In small, developing countries lacking in skilled human resources, it is not unusual for the government to "invite" external analysts
into the policy circle for advice on complex subjects such as project appraisal of rural electrification. International lending agencies even encourage this process, and may initiate discussions leading to a Technical Assistance agreement.

Because the interest rates on loans from the international and regional lending agencies are lower than those on loans obtained in the open market, developing countries actively seek the "softer" loans. Fiji is no exception. In *Monetary Policy in Fiji*, Lucknett states that:

>In principle, if not in practice, the guidelines used by the Fiji government and statutory corporations for overseas borrowing are quite simple. Rule number one is to use soft loans as much as possible. Thus, the government will first attempt to tie Fiji’s overseas borrowing to a specific project, and then to apply to one of the international agencies of which it is a member (e.g., the World Bank or the Asian Development Bank) for financing. If the borrowing cannot be made project-specific, or if the project is not acceptable to one of the international agencies, then the borrowing will be done on the open market.\(^{106}\)

Several times since independence, Fiji has had severe enough balance-of-payment problems that it has had to borrow from the International Monetary Fund\(^ {107}\) as well. Fiji has, however, taken a conservative approach to relying on IMF assistance. By 1986 Fiji had made use of the compensatory financing facility only twice, and the oil facility only once.\(^ {108}\)

The two major projects during the first two decades of independence that involved loans with the World Bank\(^ {109}\) were the upgrading of the coastal road on the main segment traveled by tourists, and the building of the Monasavu hydroelectric dam. The former project, costing more than $20M (a sort of threshold, below which the World Bank typically
delegates its lending role to a regional bank), provided the first major exposure between the Fiji government and the World Bank in the early 1970s. In the mid-1970s, as a result of oil price hikes, the Monasavu project was initiated.

In the case of the electric power sector in Fiji, the World Bank played a coordinating role in organizing external loans from both the public and private (commercial) sectors. The total cost of the three phases of the Monasavu Hydroelectric Project was $230M, and included loans to the Government of Fiji from the following: IBRD, ADB, the Commonwealth Development Corporation (CDC), and several private construction firms.

In addition to moving more money than any other development agency, the expert technical, fiscal and managerial advice the World Bank provides to developing countries has established its intellectual, as well as financial hegemony among the lending agencies. Although both the World Bank and the IMF are nominally specialized UN agencies, each with more than a hundred members, their weighted voting systems based on capital shares is similar to that of the ADB, and ensures that the developed countries control their policy agendas.

Objectives of the ADB, as indicated in the ADB Annual Report 1987, include the following:

1) To be a catalyst in promotion of development in the Asia-Pacific region;

2) To make loans and equity investment for the economic and social advancement of developing member countries (DMCs);
3) To provide technical assistance for the preparation and execution of development projects and programs and advisory services;

4) To promote investment of public and private capital for development purposes;

5) To respond to requests for assistance in coordinating development policies and plans of member countries, giving special attention to the needs of the smaller or less developed countries.

The Bank actively pursues co-financing activities with official, as well as commercial and export credit sources, and is involved in equity investment operations.  

Technical Assistance (TA) is an important ADB activity. Typically using United Nations Development Programme (UNDP) funds, the TA operation allows both the ADB and the DMC to explore the financial and economic viability of new areas for project, program or sector lending, at little or no cost to either.

In 1987 the ADB borrowed a total of $537M, primarily through public bond issues in the German, Japanese, and Swiss capital markets. The average weighted cost of the 1987 borrowings to the ADB was 5.6 percent per annum. The average cost to DMCs of this money, once it was "rolled over," was from 7.0 percent to 7.7 percent per annum. This loan spread on 1987 borrowings satisfies two "essential" financial policies relevant to profit-earnings of the ADB:

The Bank will continue to maintain the adequacy of its net income by ensuring that its interest-coverage ratio does not fall substantially below 1.25 in the long run, while the minimum target for the Bank's reserve:loan
ratio will be set within the range of 20 per cent to 25 per cent. In setting the targets for these indicators, the Bank will ensure that such targets would not result in a perceptible basic negative trend in the Bank's long-term net income.\textsuperscript{116}

The ADB borrowed less than it had originally planned for in 1987, "in response to a larger-than-expected rise in liquidity during the year, brought about mainly by increased loan prepayments and cancellations and the appreciation of major currencies against the U.S. dollar."\textsuperscript{117} In situations of excess liquidity, the ADB is eager to identify projects in the more creditworthy of its member countries.\textsuperscript{118} These projects would require Ordinary Capital Resources (OCR) capital, and allow the ADB to earn an average profit margin of 2 percent.

Fiji has been a Developing Member Country of the ADB since 1970. It has virtually no voting power (one half of a percent), while the developed country members control over 50 percent of the voting power, with Japan having the largest single share of votes.\textsuperscript{119}

Fiji is eligible for OCR loans from ADB, rather than the Special Funds made available on highly concessional terms to the poorest members of ADB.\textsuperscript{120} Cumulative ADB lending to Fiji at the end of 1987 was $60.5M; $36.9M or 61 percent was to the electricity sector.\textsuperscript{121} There were three successive ADB loans, in conjunction with a number of other private and public agency loans, for the design and construction of civil works and transmission and distribution lines related to the Monasavu hydroelectricity project.

The executing agency for these loans was the Fiji Electricity Authority, a statutory body established by the Government of Fiji to
implement grid-based electricity projects. In TA reports prepared by the ADB, execution of the loan is conditional on FEA being the executing agency. 122

Activity of SCBA in the Fiji Rural Electrification Case Study

Using UNDP Technical Assistance funds, the World Bank proposed in 1983 to send an Energy Sector Assessment (ESA) Mission to Fiji. 123 The Mission arrived in Fiji in late 1982, and included the Senior Power Engineer from the ADB. He wrote up the ADB RE Study Tentative Terms of Reference (TOR), indicating that the study was at the request of the Government of Fiji. In 1983 both the World Bank and the ADB issued reports on Fiji. The former was entitled "Fiji, Issues and Options in the Energy Sector," and the latter was entitled "Technical Assistance to the Government of Fiji for Rural Electrification Study." Both reports emphasized the need for institutional reforms and pricing policies to eliminate subsidies. 124

In the Terms of Reference for the ADB SCBA of RE, two main objectives were stated:

1) Establishment of a country-wide electrification program showing communities suitable to receive electricity supply, assigning priorities among them and determining their optimum source of supply; and

2) Formulation of a coherent rural electrification policy with respect to selection criteria, organization, financing, and technical standards.

In support of these objectives, as stated in the TOR, the consultants would prepare load forecasts, determine the least-cost
source of supply for each community, review service and design standards, perform SCBA which properly distinguishes between economic and financial costs and benefits (yielding both EIRR and FIRR), develop selection criteria for individual RE schemes, propose a staged RE program and estimates of relevant capital requirements, and review institutional arrangements relevant to the organization and administration of RE, with a view to modifying them to ensure smooth and cost-effective implementation of rural electrification. 125

In late 1983 the ADB hired the TATA consulting firm from Bombay, India, to undertake the $0.25M TA project in Fiji. For a period of two months approximately ten engineers and economists visited Fiji. The Team Leader stayed for the entire period, but the remainder stayed for several weeks or less.

Most of the ADB consultants' activity centered around the following: (1) gathering secondary data on projected development projects, and translating these data into load forecasts; (2) gathering secondary data on village profiles and estimated income levels, using the income data as a basis for the various load forecasts; (3) sending engineers out to potential sites for hydroelectric projects; and (4) instructing the FEA staff on how to use a computerized model, with both load forecasting and economic analysis components. 126

In mid-1984 the TA report was issued, entitled Fiji Rural Electrification Study: Draft Final Report to the Asian Development Bank. The findings and recommendations to the Government of Fiji were reported in the second chapter. The capital cost of the first five-year phase was reported to be $20M. Of the 518 villages, 135 to be electrified during this phase were in the categories of "isolated
diesel" and "photovoltaics," and generally included the outer-island villages of the Eastern Division of Fiji. Although these villages did not meet the minimum criteria of an economic internal rate of return of 12 percent, as calculated in the computer model, it was recommended that the $1.9M "first costs" of installing these schemes be financed as a grant by the government, and the entire amount treated as a subsidy (recurrent costs would be paid by the villagers). The financing plan suggested for the electrification of the main islands involved a grant of $9M (local costs) and a loan of $10.6M (foreign exchange costs) at 10.25 percent interest by the Fiji Government to the FEA. In order for the FEA to earn an 8 percent return on net fixed assets, at least $3M of this would have to be considered a subsidy from the start.127

In advising the government to both guarantee loans on behalf of the FEA, and subsidize a minimum of one-fourth of the cost of the RE program, a number of critical assumptions were made by the consultants that deserve further analysis.

The first of these assumptions was that higher priority demands for the same government money in each village had been ruled out. In fact, this step of the analysis was omitted. The justification for an electrification project was instead based on the rationale that the alternative source of five hours of lighting per night, as provided by kerosene and benzine lamps, had been proven in numerous studies to be more expensive than the lighting provided by either diesel generators or photovoltaic kits.
The second assumption was that the formulas in the computer model are based on a sound methodology. Three methodological problem areas were identified: (1) no premium was placed on foreign exchange; (2) debt-servicing and principal payments were not entered into cost streams (a systems boundary problem); and (3) physical units, as well as costs, were discounted in least-cost solutions. The second problem is of particular concern, as half of the project costs were proposed to be funded by external loans.

A third assumption is that the RE equipment would be used five hours a night, 365 days of the year. This is a load factor problem (load factor being defined as the ratio of average load to peak load). This number summarizes, in essence, the totality of experiences to date in operating RE equipment in the outer islands, and is the most important item of data to enter calculations about the viability of future RE projects. The reason that these data are not on file in PWD offices is because, with few exceptions, no attempt has been made to record data about operating experiences at the village level on any systematic basis. In the absence of "hard" data about actual operating experiences, it is misleading to assume a perfect world. Despite references in the report to the problematic nature of maintenance and repair visits to the outer islands, the numbers in the computer model do not reflect this concern.

A fourth assumption was that the need for a training component in each project has not only been assessed, but also entered into the feasibility calculations. Although mention is made of the need for training programs in a general sense, this concern is not translated
into a line item cost in the actual computer runs. In view of the fact that a copra knife is typically the only tool that a villager owns, and is familiar with, this single omission could have a greater impact on the viability of an actual project than any of the numbers that did go into the calculations.

From the "pyramid" perspective of the activity of SCBA, as performed by the ADB consultants in the Fiji case study, the "apex" numbers generated by the underlying methodological and data assumptions are the focus of the activity of SCBA. From this perspective, if the methods and data entries are improved upon, the correspondence between the computerized model of RE investments, and the outcome of these investments, is improved. As this correspondence improves, the probability is increased that statements of the type "If you do X, then Y occurs" will be validated by actual experiences.
NOTES TO CHAPTER IV


2. Starling, p. 679.

3. Ibid., p. 5.

4. Ibid., pp. 6-7.

5. Ibid., p. 2.


7. Albert Waterston (1969), Development Planning: Lessons of Experience. Baltimore: Johns Hopkins University Press). It is interesting to note that developed countries, e.g., the United States, which are the major agenda setters of international lending agencies, such as the World Bank, often do not believe in practicing the rite of preparing development plans at home.


Ibid., p. 163.


Staff writer (1989a), Fijians outnumber Indians after 42 years. The Fiji Times, Jan. 17, p. 3.


Eddie Dean and Stan Ritova (1988), Rabuka: No Other Way (Suva, Fiji: Oceania Printers Ltd.), p. 11.


Far Eastern Economic Review.


Ibid.

Peter Johnston (1976), Planning for Small-Scale Use of Renewable Energy Sources in Fiji, presented at the 1976 UNESCAP Workshop on Solar and Wind Energy (Suva, Fiji: Central Planning Unit), pp. 3-5.


On May 14, 1987, the first coup in Fiji occurred with a raid on Parliament House by a small group of soldiers, under the direction of Colonel Sitiveni Rabuka. This event was one month after the general elections, held every five years, put the Fijian-dominated Alliance Party out of power for the first time since independence in 1970. The new government was formed by a coalition between the Indian-dominated National Federation Party, and the newly formed Labour Party. The 28 members of Parliament from the Indian-dominated government benches were marched at gunpoint from chambers that remained deserted in late 1988. The second coup occurred on September 25, 1987, when Rabuka became dissatisfied with the interim government's commitment to rewriting the Constitution to guarantee, in perpetuity, the right of the Fijian people to rule their own land. The interim government, set up in December 1987, put many of the pre-election leaders back in power, including the President and Prime Minister. New elections are to be held once details are worked out on a new Constitution.


Ibid., p. 243.
As indicated by the title "Prime Minister," the "PM" is at the apex of the modern governing system of Fiji. Ratu Sir Kamisese Mara, the Prime Minister since independence, is also of very high chiefly status in the traditional system. Historically there were three confederacies that governed Fiji before the British took over. Ratu Mara is the head of one of these confederacies, that includes the Eastern Division, and through marriage the heads of the other two are represented in Ratu Mara's immediate family. He is the paramount chief in the Lau Province, and therefore a senior member of the Great Council of Chiefs. At the time of fieldwork he also held the portfolio for the Ministry of Fijian Affairs. It was necessary to have his personal permission to conduct fieldwork in the Lau province.

The Cabinet provides the political input to the budget process, and also meets three times a year, subsequent to the DSC meetings. If this system functions properly, it allows for a political input at all stages of planning in the budget process. Once the Cabinet has approved the estimates in total, and the allocation to each ministry, no further revisions are permitted, except by Cabinet.

The Development Sub-Committee consists of permanent secretaries and department heads who represent Ministers of State. Its chief role is to receive and discuss the various budgetary proposals emanating from the BBC, before they go on to Cabinet. This allows the Permanent Secretaries to express their concerns regarding any of the budget estimates, and to brief their ministers before the Budget is presented to Cabinet. The DSC meets three times a year: in January to consider the guidelines on commitments and priorities for the coming budget; in April to consider the Design List; and in August to consider the final, consolidated budget estimates.

The Budget Coordinating Committee was set up by a Cabinet decision in 1980, as part of a program to revise the budget format and improve budget decision-making. Its membership
includes the Permanent Secretaries of the Ministry of Finance (MOF), the MEPD, and the Public Service Commission (PSC). Its main duties are (1) to ensure that the financial and staffing decisions in each year's budget estimates are consistent with Development Plan priorities, given the resources estimated to be available; (2) to recommend to the Cabinet, via the DSC and the Minister of Finance, priorities for new projects to be included in the Design List (the schedule of new expenditure); (3) to recommend to the Cabinet, later in the year, the level and allocation of expenditures proposed for the following year's estimates; and (4) to serve as a forum for discussion of specific budget policies and problems between the central agencies and the spending departments, in an attempt to clarify policy issues before the Budget is presented to Cabinet.

48 Crown Agents (1983), p. 7. The Macro Economic Sub-Committee (MESC) coordinates the monetary, fiscal, and general economic policies of the nation. Its membership includes the general manager of the Fiji Reserve Bank (the FRB was formerly called the Central Monetary Authority), and officials from the FRB, and the Bureau of Statistics (BOS) and Budget sections of the MOF. Its two main functions are (1) to prepare current estimates and projections of the main budget and macro-economic variables and (2) to advise the BBC on appropriate levels of government expenditure, based on estimates of available resources. The macro-economic assessments of the MESC for a given year suggest modifications that may be necessary to the Development Plan, based on changing economic circumstances.

49 There is a high turnover rate of government economists in the Central Planning Office. Replacement is often uncertain, and continuity is difficult to achieve under these circumstances. The supply of government economists is chronically short, as many who receive training for such employment are unable to resist the temptation of more lucrative employment elsewhere. Indians, in particular, tend to migrate overseas if they can find an opportunity to do so. Family, financial, and cultural constraints have limited the number of Fijians who have managed to complete the rigors of training to be an economist. Although there has been an effort to localize such positions, it has been difficult to avoid employing at least a few expatriates as government economists. The salaries of expatriates are typically funded externally, for a fixed time period (as local salaries are attractive to few).

50 Two functions within the Ministry of Finance were of importance to this research: (1) the preparation by the Bureau of Statistics (the BOS is a division within the MOF) of statistical summaries of the economy and the population base; and (2) the role of the Budget section in the project planning cycle.

51 The preparation by the Bureau of Statistics (BOS) of statistical summaries of the economy and the population base is adequate,
but not very sophisticated by developed country standards. Several problem areas were identified that forced me to look elsewhere for data that I had expected to find at the BOS. Access to documents that were printed in limited numbers is not well controlled, and many have disappeared from the library. Fortunately, duplicates of many of these are located at the National Archives library (one block away), where access is closely monitored, as it is at the Central Planning Office. Secondly, the BOS also suffers from understaffing problems, with the result that the publication schedule is often delayed. For example, two years after the 1986 census data were collected, many of the results were not yet ready for publication. Third, the efforts to collect income and expenditure data over time have not been successful, for a multiple of reasons. The Household Income and Expenditure Survey (HIES), conducted by the BOS in 1976, published its results in a very aggregated form, and although the disaggregated data still existed on computer tapes, programming inadequacies prevented further use of this "million dollar" data. (Personal communication with Mark Sturton on April 10, 1984). Sturton was seconded from the CMA to the BOS for the purposes of programming the HIES. He was returned to his normal duties as the survey progressed, and only belatedly realized the oversight. Stavenuiter, a consultant hired by the CPO to evaluate the HIES data, concluded (on the basis of input-output social accounting matrices) that substantial underreporting of commercial incomes had occurred (reported in Stan Stavenuiter [1982] Adjusting Fiji's Income Distribution Estimates for Differences with National Accounts Aggregates. International Labor Organization/World Bank Project on Internationally comparable income distribution data, paper for Central Planning Office, Suva, pp. 16-19.

Other categories of income data were determined to be reasonably accurate. The 1980 annual report of the BOS announced plans for a second HIES in 1985, but plans for the second survey were later dropped (reported in Parliamentary Paper: Bureau of Statistics Annual Report 1980 [No. 27 of 1981], p. 17; and personal communication with Sakiusa of 1986 Census Department [1988]).

Before departing for fieldwork, extensive plans were made for the use of the HIES data in this research. It was disappointing to learn that the government efforts to collect income and expenditure data were of no use for either inter-village comparisons, or comparisons over time for a single village. It took ten months (of persistent questioning) to finally determine that although the data still existed on computer tapes, the problem in utilizing the data was not one of access, but of poor planning and documentation during the programming stage. By this time it was too late to plan an alternative strategy for collecting such data, other than asking the nursing staff in the Eastern division to cooperate, on short notice, in filling out a village profile that included income and expenditure data. The data that did finally reach me in Honolulu were not collected in an organized and supervised manner, limiting the usefulness of these data.

After 1982 Fijian affairs and rural development concerns were no longer addressed within the single Ministry for Fijian Affairs and
Rural Development (MFARD). Despite the split of this ministry into two ministries, the MRD and the Ministry for Fijian Affairs (MFA), the two ministries continue to work closely together. Before the split, the MFARD had a total of nearly 500 staff members, including those in the Fijian Administration (staff of 92), the Native Land Trust Board (staff of 178), and the Rural Development and District Administration (staff of 148) arms of the MFARD. This compared with a staff ranging from four to eight persons at the DOE. See the following Parliamentary Paper: Ministry of Fijian Affairs and Rural Development, Annual Report for the Year 1982 (No. 59 of 1984), p. 7; Department of Energy Annual Report for the Year 1984 (No. 71 of 1985), p. 2; and Department of Energy Annual Report for the Year 1985 (No. 43 of 1986), pp. 2-3.


55 They informed village leaders in advance of the RE purpose of my research, and helped with the logistics of reaching the outer islands safely in a fishing punt, powered by an outboard engine. Several thousand miles of open ocean were traveled during the course of the fieldwork period, and my appreciation of the role of the Director and his staff as "guardian angels" during this sea voyage cannot be overemphasized.

Continuity between the fieldwork phase and later evaluation efforts was enhanced by the eventual promotion of the Director of Rural Development to the post of Permanent Secretary of the post-coup ministry responsible for the energy sector.

56 See the following Parliamentary Paper: Ministry of Rural Development, Rehabilitation and Rural Housing Report for the Years 1983-1984 (No. 6 of 1987), pp. 5-6.

57 See the following Parliamentary Papers submitted by the implementing agencies, the DOE and the MRD: Department of Energy Annual Report for the Year 1984 (No. 71 of 1985), p. 5; and Ministry for Rural Development, Annual Report for the Year 1985 (No. 15 of 1987), pp. 18, 21, 54.


60 See the following Parliamentary Paper: Ministry of Fijian Affairs and Rural Development, Annual Report for the Year 1981 (No. 36 of 1983), fig. I (Rural Development Administrative Structure).

61 Stages one through three of this process are unique to the Fijian Administration (FA), and have a two-stage counterpart within the Indian communities (settlement committees and advisory councils). Ovalau island in Lomaiviti province is the only island in the Eastern Division that has an advisory council. Local government in Rotuma is based on both the Rotuma Council (an indigenous body), as well as the district-level administrative structure responsible to the Ministry for Rural Development. See the following Parliamentary Paper regarding Levuka: Ministry of Rural Development, Rehabilitation and Rural Housing Annual Report for the Year 1985 (No. 15 of 1987), pp. 5-6. See Norman Douglas and Ngaire Douglas (1987), p. 217 regarding Rotuma.


63 MFARD (No. 59 of 1984), pp. 11-14.


69 Ropate R. Qalo (1983), p. 42. I observed that a gradual decrease in the level of respect for traditional decision-makers had contributed to a general deterioration in rural living conditions. This was especially relevant in the case of some of the youth who had returned to the village after schooling in urban areas. In the village they neglected opportunities to learn farming practices from their
elders, preferring instead to drink home brew and generally raise havoc in the villages.

70 Rodney Cole, Stephen Levine and Anare Matahau (1984), The Fijian Provincial Administration Review, Pacific Islands Development Program, East West Center. At the MFA and MRD this report is frequently referred to as the "Cole Report."

71 The Ministry for Health and Social Welfare has in place, in the rural areas, a network of health workers who are intimately familiar with village conditions. Their assistance in the urban office setting, as well as in the villages, was invaluable.

72 Contact was made with the Ministry of Education for three reasons. First, the Institute of Natural Resources (INR) at the University of the South Pacific (USP) officially sponsored my visa application, and generously provided me with an office, USP housing privileges, and advice on data collection. USP requests for research visas in Fiji must be routed through the Ministry for Education. Secondly, several of the locations in the Eastern division where the PWD installed generator sets were not village sites, but rather school compounds located at a distance of one or more kilometers from a village. Prior information from the Ministry of Education helped to locate these RE sites, and make contact with the teachers living there. Thirdly, teachers were, in some cases, a source of valuable explanations and insights about (1) symbolic meaning associated with particular phrases in the Fijian language (and translated into English); (2) kinship relations between villagers, at best a complex and confusing topic for the outsider, and additionally a topic of much joking (leg-pulling) in everyday life, with the outsider as a favorite target; (3) customary practices and taboos associated with eating, fishing, gardening, traditional ceremonies, etc.; and (4) relations of power and authority in the local setting. Teachers are typically the most fluent in the English language of all rural inhabitants. Especially during the initial stages of fieldwork, when knowledge of relationships, symbolic meanings, and customary practices and taboos was very minimal, teachers provided valuable explanations and insights that greatly facilitated the process of learning about the local language and culture.

73 The Ministry for Primary Industries (MPI) provided assistance of three different types. First, the Permanent Secretary, who was the Director of the Pacific Islands Development Program (PIDP) at the East-West Center (EWC) until several months before the fieldwork period began, initiated the research visa application process. Second, the Chief Economist of the MPI provided access to two project planning manuals that British consultants had prepared for use by government project analysts (see Chapter IV). These manuals were in very limited circulation at the time, and generally very difficult to obtain access to. Third, the fisheries division of MPI allowed the use of one of
their fiberglass research punts for a six-month period. The Institute of Natural Resources of the University of the South Pacific requested permission from the Fisheries Department to use this Yamaha punt. The Senior Fisheries Officer granted permission, on the condition that I was responsible for repairs. There was also interest on the part of the Fisheries Department to have detailed knowledge on the availability of electricity in the Eastern division for the purpose of ice-making.

In 1981 a separate ministry was set up to address energy concerns. By the next year energy concerns were dealt with by establishing a Department of Energy, rather than a separate ministry. The Department of Energy has been administratively associated with numerous other departments, under the jurisdiction of a single minister. From 1982 to 1988 these departments included land, mineral resources, tourism, and civil aviation.


Internal files at the PWD RE division at Walu Bay; as well as the Parliamentary Paper, Ministry of Rural Development, Rehabilitation and Rural Housing Report for the Years 1983-1984 (No. 6 of 1987), p. 29.


In 1984 there were 188 operating primary cooperatives and 10 island associations (including the three associations in Rotuma) in the Eastern Division. The following Parliamentary Papers were consulted: Ministry of Cooperatives Annual Report for the Year 1984 (No. 63 of 1985), p. 6; Ministry of Cooperatives Annual Report for the Year 1985 (No. 42 of 1986), pp. 1-24; and Ministry of Cooperatives Annual Report for the Year 1986 (No. 5 of 1988), pp. 1-25.

Interview with (Acting) Director of Energy, Sept. 27, 1988, Suva.


Ibid., p. 3.

Ibid., p. 3.


Hufschmidt et al., p. 3.

Ibid., p. 4 and Gowen, p. II-2-3.
94. Gowen, pp. II-8 and II-16.

95. Ibid., p. II-2.


101. Gowen. Originally COMPRAN was on a mainframe at Ohio State University, under the supervision of Hitzhusen, Gowen and McCullough. With funding from the East-West Center and USAID, and assistance from numerous EWC staff, both the software and the documentation for COMPRAN were rewritten and expanded for use on microcomputers. In this way it was hoped that the affordability and "user-friendliness" of COMPRAN would be improved. The U.N. Pacific Energy Development Programme has promoted the use of COMPRAN through workshops in numerous Pacific island countries, including Fiji, Papua New Guinea, the Cook Islands, the Solomon Islands, Tonga, and Vanuatu.


Desai, p. i.

Dudley G. Lucknett (1987), Monetary Policy in Fiji, Institute of Pacific Studies, University of the South Pacific, p. 96.

Graham Bannock, R. E. Baxter and Ray Rees (1979), The Penguin Dictionary of Economics (London: Penguin Books), pp. 245-248; and David W. Pearce (1983), The Dictionary of Modern Economics (Cambridge, MA: The MIT Press), p. 221. According to the Bretton Woods Articles of Agreement mentioned above, member countries of the IMF (also commonly called the Fund) may draw upon its supply of gold and foreign currencies, originally contributed by member countries, when such withdrawal is required to correct temporary maladjustments in their balance-of-payments. The member countries are obligated to abide by "conditionality" clauses, when seeking IMF assistance, which are intended to correct the balance-of-payments situation. In addition to these tranche policies, the Fund has established a compensatory scheme for financing temporary export fluctuations, a buffer stock financing facility, an extended facility which provides medium-term financing to enable members to overcome structural balance-of-payments difficulties, and a supplementary oil facility designed to assist members in meeting the increased cost of oil and oil-related imports.

Lucknett, p. 96.

Pearce, p. 217. The International Bank for Reconstruction and Development (IBRD), commonly known as the World Bank, was established in 1945, along with the IMF, by Articles of Agreement signed at the United Nations Monetary and Financial Conference held at Bretton Woods, New Hampshire. The World Bank became a specialized agency of the United Nations in 1947. The original emphasis on postwar reconstruction in Europe shifted, by 1948, to one of assisting in the economic development of member countries by providing loans where private capital is not available on commercial terms to help finance investment projects. In addition to its lending activities, the World Bank does project appraisal, is the executing agency for the United Nations Development Programme (UNDP), and collaborates with numerous international and regional development agencies, including the ADB. World Bank loans are generally long term (for periods up to 30 years) and are made directly to governments or to private firms with their government as guarantor. The Bank finances its activities by members' contributions, calculated according to their quotas in the IMF,
borrowing in world capital markets and selling portions of its loans. The Bank also provides and coordinates a wide range of technical assistance for member countries. It conducts project feasibility and evaluation studies and acts as executing agency for a number of development projects financed by the United Nations Development Programme (UNDP). In addition, the Bank collaborates with numerous international and regional development agencies, including the Asian Development Bank (ADB). The Bank also administers the Economic Development Institute (EDI), a staff college which provides training for government officials of member countries who are directly involved with the evaluation and implementation of development programmes. The Bank's lending and technical assistance activities are complemented by two affiliated organizations; the International Finance Corporation (IFC) and the International Development Association (IDA), established in 1956 and 1960, respectively.


113 Asian Development Bank (1987a), ADB Annual Report 1987 (Manila), pp. 1-4, 106. The Asian Development Bank (ADB) is a regional development bank and lending agency. It was created in 1963 out of a recommendation of the Economic Commission for Asia and the Far East. Although not a member of the United Nations family, one of the Bank's functions is to cooperate with the UN family and with public international organizations and other international institutions, as well as national entities, whether public or private, in regard to development activities in the region. The Bank started functioning in December, 1966, with its Headquarters in Manila, Philippines. It is owned by the governments of 32 countries from the Asia-Pacific region and 15 countries from Europe and North America. While the Bank's operations cover the entire spectrum of economic development, particular emphasis is put on agriculture, rural development, energy, and social infrastructure. Most Bank financing has been for specific projects, but the Bank is also involved in program, sector, and multi-project loans.

114 ADB, p. 48. UNDP provided $14M for 17 technical assistance projects in 1987.

115 Ibid.

116 Ibid., p. 83.
"Creditworthy" is defined by the international lending agencies on the basis of both economic and political criteria.

There are eight South Pacific DMCs (SPDMCs) in ADB, with a total voting power of 3.6 percent. Japan has the greatest voting power of any single nation (12.4 percent), while Australia and New Zealand have a total of 7.3 percent of votes. Non-regional developed countries, including the United States (12.3 percent), have a total of 35 percent of votes. Hence developed countries control more than 50 percent of the voting power in the ADB, giving them leverage over policy decisions which Fiji and the other South Pacific members do not have.

The financial resources of the Bank include:

1) Ordinary Capital Resources (OCR), comprised of subscribed capital, reserves, and funds raised through borrowings. OCR loans account for two-thirds of Bank lending, and are generally made to DMCs which have attained a "somewhat higher level" of economic development. OCR funds are borrowed from the capital markets of Europe, Japan, the Middle East, and the United States;

2) Special Funds, comprised of contributions made by member countries, accumulated net income, and amounts previously set aside from the paid-in capital. Asian Development Fund (ADF) loans are made on highly concessional terms, and almost exclusively to the poorest borrowing countries.

With a real per capital income of US$1,084 in 1986, Fiji is eligible for OCR loans from ADB, rather than ADF loans at concessional rates. As stated above, OCR loans account for two-thirds of total loans. At the end of 1987, $7.7B of a total of $13.7B in OCR loans was outstanding, with interest rates ranging from 6.9 percent to 11 percent per annum and an average maturity of 7.9 years (a decrease from an average of 10.9 years at the end of 1986).


Personal communication with World Bank Fiji Mission leader at EWC. In 1980 the World Bank proposed a list of 60 countries to...
which they would send a joint UNDP/World Bank Energy Sector Assessment (ESA) Mission; Fiji, Papua New Guinea, and the Solomon Islands were three countries on the list.


125 Ibid., Appendix II, pp. 1-6.

126 TATA Consulting Engineers (1984), Fiji: Rural Electrification Study. Draft Final Report to the Asian Development Bank (Bombay); and personal observation of Mission team activities.

127 Ibid., pp. 17-18.
CHAPTER V
DEVELOPMENT THEORY LEVEL ANALYSIS

Introduction

The notion of paradigm shift has become popular in the social science literature during the past several decades. Once conventional wisdom fails to reliably predict the consequences of past actions, theoretical models supporting the status quo come under increasingly close scrutiny.

In the development economics literature, methodological debate is alive and well. This debate is depicted in Figure 5.1, which gives an overview of the third level of analysis in this research, i.e., development theory analysis. In this chapter the debate is reviewed, taking a broad look at all angles of the debate. The chapter concludes with a deeper probing into important theoretical underpinnings of welfare economics and project appraisal theory, subsumed under conventional economic development theory.

Paradigm Shift

Economic growth has been the most universally accepted goal of development efforts in recent decades. Many have questioned this goal, and in the process have offered alternative paradigms, or world views, of knowledge, policy, and personal behavior. The ultimate concern here is where development efforts should be heading, and how to get there.
Conventional Development Theory
(Development Economics/Welfare Economics/Project Appraisal)

Development Theory---Theoretical/
Methodological
Debate
Paradigm Shift

Alternative Development Theories

Figure 5.1. Development Theory Analysis: Theory of SCBA
This process of "paradigm shift," or juxtaposition of alternative views of the world, serves as a common theme in critical literature on development models. There are many labels used to describe the "older" paradigm, or "business as usual," as well as the "newer" paradigm.¹

For convenience sake only, I have selected two of many possible labels to describe the two competing paradigms in this process of juxtaposition of world views: the older paradigm is labeled here as "Cowboy Economics," and the competing paradigm is labeled "Sustainable Economics." Both acknowledge an important role for economics on the development stage, but in the latter view the stage is shared by physical scientists and other social scientists.

Economics is basically the study of human housekeeping, and is typically studied independently of ecology, which is the study of nature's housekeeping. The guiding principle is the efficient allocation of "scarce" resources. The concept of scarcity is relevant to the particular social unit allocating resources, but not to mankind as a whole. Essential to the concept of a self-sustaining, circular flow between the production and consumption sectors is the idea of infinite horizons, or wide open spaces, where additional natural resources or waste-dumping locations can be found--hence the label (coined by Kenneth Boulding) of "Cowboy Economics."²

The criterion for success in neo-classical economics is the level of throughput in the economic system (e.g., GNP), based on this assumption that the horizons for exploitation of the earth's resources, and absorption of the waste products of this process, are infinite.
Herman Daly succinctly stated that "economic growth is the most universally accepted goal in the world. Capitalists, communists, fascists, and socialists all want economic growth and strive to maximize it." For both Adam Smith and Karl Marx, improved technology could keep the sands in the hourglass flowing forever (or the merry-go-round spinning forever, depending on the perspective).

Economists have dominated the stage in this view of the world. Important assumptions of the economics discipline have been taken for granted in proposing development strategies for the developing countries, based on historical trajectories of the (westernized) developed countries. Disappointing results in transplanting developed country strategies to the developing country context have prompted a closer look at these assumptions that many still take for granted. Four examples are discussed below, and include: (1) the who part of allocation and consumption, once efficiency questions have been answered; (2) what is growing, what is declining, and what must be maintained; (3) the possibility of divorcing the study of human housekeeping from that of nature's housekeeping; and (4) the viability, in an epistemological sense, of the positivist/empiricist approach to the understanding of human housekeeping (see Chapter VI).

Distributional questions, or the "who" of economic theory and practice, became a major topic in the development literature in the 1970s. In all too many cases growth in total income was accompanied by a worsening of the distribution of income, leaving some obviously worse off after "growth" had occurred. Again, quantitative tools were developed by economists to measure the attainment of equity, as well
as efficiency. The tools were no sooner developed than the topic was largely dropped from the agenda of pacesetters in the international development arena, such as the World Bank. The measurements of trends in distribution that were reported were largely negative. By the 1980s, it was evident that economic growth itself was proving to be elusive, leaving economic analysts with little spare time to worry about secondary concerns such as equity.

In terms of "what" is growing (or declining or staying the same), it has proven difficult to measure the nonmaterial realm of human growth. If economic growth is viewed as merely a means to an end, the end being an improvement in human well-being, then the problem becomes one of measuring human well-being. The quantitative realm of measuring material growth is familiar ground to the economist, and results in statements of the levels of food, housing, clothing, health care facilities, etc. which development efforts have produced. This method of defining development is often called the Basic Human Needs (BHN) approach, and has also been subject to elaborate quantification attempts by economists. What is missing in the development equals economic growth equals improved human well-being equation is a qualitative statement about the existence (and growth) of alienation, segmentation, cultural erosion, and other aspects of mental and spiritual growth. Such statements are very relevant to the assessment of improved human well-being, particularly in view of mounting evidence that the industrial growth model has contributed negatively to the realm of nonmaterial growth.

The study of economic activities as isolated, self-sustaining processes, while ignoring the cumulative effect of exchange with the
natural environment has been questioned by both social and physical scientists. Biologists and physicists have played a key role in reminding economists of the interconnectedness of the physical and human worlds. Limits to growth, in terms of resource constraints and environmental deterioration, have been popular topics in the media for more than a decade. Although it is no longer possible to ignore the environmental underpinnings of human housekeeping, it is still possible to pretend that the subject has been dealt with by adding elegant, but ultimately meaningless, formulas to the standard techniques in the economist's tool kit.

"Spaceship Economics" is concerned with maintenance, in good order, of existing capital stocks, which both in a spaceship and on earth are the inhabitants and their life-support systems.

Economists associated with this label include Kenneth Boulding (who coined the phrase), Herman Daly, Georgescu-Roegen, and E. F. Schumacher.

Biologists, physicists, environmentalists, and other social scientists outside of the economics discipline helped to fuel the debate among the economists as to which model of human housekeeping is both viable and desirable.

According to the Spaceship Economics model, sustainability in the long-term is the key concept in defining the viability of propositions for the future. The valuation of resources is influenced by the concept of entropy. Because of the ultimate degradation in the quality of energy associated with the production of material items in use by mankind, the imagery of what an economic system does over time is changing. The popular image in the past has been that of the
pendulum, swinging to and fro as economies go through various cyclic changes. The more recent image is that of the hourglass; technological change can temporarily turn the hourglass over (borrow time), but the ultimate flow of the grains of sand is downward.

Minimizing throughput in the economic system places the regard for the rights and welfare of future (unborn and non-voting) generations in center stage. A big question is again equity, but this time the primary concern is intergenerational, rather than intragenerational equity. The tendency in large-scale, centralized solutions favored by Cowboy Economists is to ignore costs that occur to groups other than the benefit-receiving, targeted population of a particular development effort. Those distant in space and time miss out on the benefits, but not on the costs, which may be considerable. According to John Holdren, the author of the Holdren Principle, a different sort of "efficiency" calculus characterizes much of the decision-making associated with the small-scale, decentralized solutions advocated in Spaceship Economics. When both the benefits and costs occur more nearly to the same population of people, it may be possible to dispense with sophisticated analytical techniques such as Cost-Benefit Analysis. Those who will have to live with the decision can often, based on experience, use internal calculus in measuring and weighing against each other costs and benefits of entirely different sorts.

An extrapolation of Cowboy Economics is akin to the credit card mentality gone wild; the philosophy of "enjoy now and pay later" has different implications when one generation enjoys and another pays. The legacy to our children, and to as yet unborn generations, of the brief span in the history of mankind represented by the development
decades since World War II, is financial debt and environmental degradation on a previously unimagined scale. While few who embrace the sustainable paradigm enjoy the belt-tightening implications for many of its adherents, a combination of respect for the rights of those to come, and fear of the ultimate consequences of the unsustainable development path, serve as a powerful motivating force. The challenge is to seek enjoyment in the non-material realm, while rejecting greed in the material realm.

According to the logic of Spaceship Economics, the faster the growth of GNP, and the associated increase in the level of throughput of the economy, the greater the likelihood that a breakdown of both social and natural systems would occur. By the 1970s, the time had obviously arrived to start asking "where" development was, and ought to be, heading for.

**Development Models**

**Rostowian Model**

The western model of economic growth and development, based on the capitalistic version of this endless merry-go-round, is familiar to students of development theory as the Rostowian, or "stages of growth" model. According to W. W. Rostow, an American economic historian, the transition from underdevelopment to development can be described in terms of a series of steps or stages through which all countries must inevitably pass through. These five stages are: (1) traditional and stagnant, low per capita stage; (2) transitional stage (in which the "preconditions for growth" are laid down); (3) the "take-off" stage (beginning of economic growth process; (4) the
drive-toward-maturity stage; and (5) the industrialized, mass production and consumption stage (development stage).  

This model was prevalent in the 1960s, and argued that the advanced (developed) countries had all passed through stages three to five; the underdeveloped countries were either still in stages one or two, and only had to follow a certain set of development rules to take off into self-sustaining economic growth. "Rapid gains in overall and per capita GNP growth would either 'trickle down' to the masses in the form of jobs and other economic opportunities or create the necessary conditions for the wider distribution of the economic and social benefits of growth. Problems of poverty, unemployment, and income distribution were of secondary importance to 'getting the job done'." Other similar mainstream theories of this period were the structural-functional theory, the institutionalization theory, and various cultural theories. All were particularly biased to the western way of doing things, and blamed failures in the Third World on a failure to emulate the West (or, to use more recent jargon, of the South—often including the East—to emulate the North).

Other Models

Unfortunately for the Third World, the development planning techniques embodied in these theories did not always work. Progression from a more or less static economic condition to one that could generate and sustain annual increases in real per capita GNP (adjusted for inflation and population growth) eluded many countries. Brief successes for others during the Development Decades of the 1960s and 1970s waned by the 1980s. Implicit assumptions of western economic
theory were often inappropriate and/or irrelevant to the actual conditions in the developing world. Structural, institutional, and attitudinal conditions, such as well-developed markets, transport systems, labor skills and the motivation to succeed were either absent or present in insufficient quantities in many countries. Attempts to merely supply the missing components failed to take account of the structure and dynamics of the international system, in which both underdeveloped and developed countries are actors on the same stage.

There are many variations of international structuralist models, differing primarily in the intentions and self-interests attributed to the various categories of actors on the stage. There are also many labels for the theories behind these models, but common to all is a belief in the desirability of sustainable economic growth. The dependency, world system, imperialism, and false paradigm models are briefly introduced here, but it is beyond the scope of this paper to go into further detail on this interesting subject.

Dualism characterizes the categorization process in most models. Basically there are rich and poor nations, and rich and poor groups within each nation. Exceptions to this bimodal distribution are essentially ignored in explaining how each of the four basic categories of the world's population interacts and impacts on each other. There are four basic premises to the dualism concept: (1) "superior" and "inferior" conditions can coexist; (2) this coexistence is chronic; (3) the degrees of these conditions tend to increase; and (4) the superior element does little or nothing to pull up the inferior element, and may actually serve to push it down--i.e., to "develop its underdevelopment."
The (neocolonial) dependency model is an indirect outgrowth of Marxist theories, and had its origins in the explanation of underdevelopment in Latin America. Underdevelopment, far from constituting a state of backwardness prior to capitalism, is rather a consequence and a particular form of capitalistic development known as dependent capitalism. Dependence is a conditioning situation in which the economies of one group of countries are conditioned by the development and expansion of others. Some countries can expand through self-impulsion while others, being in a dependent position, can only expand as a reflection of the expansion of the dominant countries. The basic situation of dependence causes these countries to be both backward and exploited. Dominant countries are endowed with technological, commercial, capital, and socio-political predominance over dependent countries (the form of this predominance varies according to the particular historical moment), and can therefore exploit them, and extract part of the locally-produced surplus. Dependency, then, is based upon an international division of labor which allows industrial development to take place in some countries while restricting it in others, whose growth is conditioned by and subjected to the power centers of the world.15

The world system model shares with the dependency model a distinct Marxist flavor. It postulates that capitalism has become a world system, and not just a juxtaposition of national capitalism. The sovereign state and the national society have been abandoned as the unit of analysis. The only social system is the world system, and
the social contradictions characteristic of capitalism are thus on a world scale. The contradiction is not between the bourgeoisie and the proletariat of each country considered in isolation, but between the world bourgeoisie and the world proletariat.\(^{16}\)

The imperialism model had its origins with Lenin and Hobson. Originally, theories of imperialism sought to explain the absence of a profound economic crisis in the capitalist nations of Western Europe. They continued to account for the continued growth of capitalism by focusing on the way in which the acquisition of colonies had enabled European powers to export capital, and thereby postpone crises at home. The early theorists paid little attention to the effects of foreign capital investment in the underdeveloped countries, generally assuming that such effects were benign. More recently this assumption has been critically viewed, as the data reveal a net outflow of capital from the Third World to the metropolis as a result of foreign investment.\(^{17}\)

The false paradigm model attributes Third World underdevelopment to faulty and inappropriate advice provided by well-meaning, but often uninformed international "expert" advisors from developed country assistance agencies and multinational donor organizations (e.g., the World Bank, IMF, ADB, UNESCO, ILO, and UNDP). These experts offer sophisticated concepts, elegant theoretical structures, and complex econometric models of development that often lead to inappropriate or simply incorrect policies. Because of institutional and structural factors, such as the highly unequal ownership of land, disproportionate control over domestic and international financial assets, and very unequal access to credit, these policies often merely serve the vested
interests of existing power structures, both domestic and inter-
national.18

Theoretical Analysis

A nested set of theoretical problems is addressed at the following three levels of development theory: (1) development economics as a post-World War II theoretical guide to Third World development planning; (2) welfare economics, a sub-theory of development economics, as a further guide to improving human welfare through maximization of the aggregate of individual preferences; and (3) project appraisal, a sub-discipline of welfare economics that encompasses social cost-benefit analysis, or project appraisal from the perspective of (a Third World) government (vs. the private sector).

Development Economics

Evolution.--Development economics emerged in the 1940s as a sub-discipline of economics. The general progress within the sub-discipline was from large generalizations and high abstractions, to greater specificity and concreteness. Third World countries were found to be more heterogeneous than originally thought, and many of the earlier errors in development theory were thought to be due to the inappropriate transfer of assumptions and relations from one country or region to others.19

Development economics was influenced by Keynesian economics. Both schools of economic thought shared certain important features, i.e., the idea that market mechanisms are inadequate as a basis for economic activity due to the existence of structural disequilibria
in market economies, and the implication that a (presumably) neutral and beneficent state would have to play a judiciously active economic role in guiding and supplementing the market. This perspective opened up a substantial role for skilled technocratic economic advisers, who are needed to instruct political leaders on how to guide the economy, and to carry out detailed economic calculations that support these instructions. The practical implications of Keynesian economics in developed countries was an increase in public policy activism and macroeconomic fine-tuning, while in developing countries the practical implication of development economics was an increase in elaborate development plans and social cost-benefit analyses. 20 To the extent that economists capable of performing SCBA are chronically in short supply in developing countries, this role is frequently filled by short-term foreign consultants.

Methodological Debate.--A review of the development literature suggests that, at the end of four development decades, methodological debate has become a major growth industry in development economics. In 1983 and 1986 World Development devoted entire issues to this debate, 21 and hundreds of related articles were cited from economics, development, and public policy journals. In an introductory article to this debate, it was suggested that "the growth of methodological debate is often cited as evidence of a science in crisis. If so, economics clearly is in trouble." 22

The debate has continued to grow in the development literature, and below is a brief review of a variety of positions taken in this debate. The organization of this table was suggested by an article
in a 1988 issue of *World Development*, written by an ardent supporter of development economics. He posed the question as to whether development economics is (1) alive and well; (2) declining in importance; or (3) dead as a subject thesis. The responses of various authors to this hypothetical question, as indicated by the content of their work, have been organized in the following five categories:

**Category I:** Economists Viewing Development Economics As Alive and Well;

**Category II:** Economists Viewing Development Economics As Declining in Importance and Attempting to Shore Up Its Foundations;

**Category III:** Economists Viewing Development Economics As Dead But Not Offering Substantive Alternatives;

**Category IV:** Economists Viewing Development Economics As Theoretically Flawed and Offering Alternative Theories;

**Category V:** Non-economists Viewing Development Economics As Inadequate and Offering Substantive Ideas for Improvements or Alternatives.

The overview in Table 5.1 is necessarily brief, and other authors might well have been used to illustrate similar aspects of each argument.

Economists in the first category include Rostow, Todaro, Chenery, and Theofanides. All would defend the usefulness of neoclassical economic theory as a foundation for their work, but they differ primarily in the importance they attach to the necessity of recognizing "from the outset that ethical or normative value premises about what is or is not desirable are central features of the economic discipline in general, and of development economics in particular." Todaro's popular text on economic development in the Third World further states that:
Table 5.1
Methodological Debate in (Development) Economics

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<th>AUTHOR (YEAR)</th>
<th>COMMENTS</th>
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<tbody>
<tr>
<td><strong>Category I:</strong></td>
<td>Economists Viewing Development Economics as Alive and Well</td>
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<tr>
<td>Rostow (1960)</td>
<td>Rostow's model of development and economic growth (see Chapter I) has been widely discussed and criticized in the development literature, and serves as a useful starting point in any methodological debate about development economics. Todaro's caveat that the objectivity of models may be more assumed than real is particularly appropriate to Rostow's work.</td>
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<tr>
<td>Todaro (1981)</td>
<td>Todaro, as the author of a popular text on economic development in the Third World, has explicitly acknowledged that it is necessary to recognize from the outset that ethical or normative value premises about what is or is not desirable are central features of the economic discipline in general, and of development economics in particular. He further acknowledges that implicit assumptions in general economic models about human behavior and economic relationships may have little or no connection with the realities of developing economies, and to this extent their objectivity may be more assumed than real. Major development issues, that arise not only out of a reaction to an objective empirical or positive analysis of what is, but ultimately from a subjective or normative value judgment with regard to what should be, are openly discussed.</td>
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<td>Chenery (1983)</td>
<td>Chenery regards the neoclassical growth model as a useful point of departure for his work on structural change. He argues that empirical work based on computable models can reduce the controversy between neoclassical and structural approaches to development.</td>
</tr>
<tr>
<td>Theofanides (1988)</td>
<td>Theofanides argues that the scientific paradigm of development economics is not dead nor is it declining in importance. Instead it has desynthesized into more than 30 analytical and specialized &quot;sub-paradigms&quot; which deal with the complex economic phenomenon in LDCs. The great number of sub-disciplines of development economics is viewed as verification of the dynamic evolution of the discipline, with the trend toward increased specialization as the true index of the scientific progress of the subject.</td>
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Table 5.1 (continued) Methodological Debate in (Development) Economics

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<th>AUTHOR (YEAR)</th>
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<td><strong>Category II:</strong></td>
<td>Economists Viewing Development Economics as Declining in Importance and Attempting to Shore-Up Its Foundations</td>
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<tr>
<td>Little (1982)</td>
<td>Little, in an extensive survey of the theory of development, considers the field as essentially applied micro theory. Policy errors and misjudgments in the macroeconomic field are cited and highly disaggregated micro-models suggested as helpful aids in identifying possible sources of economic growth.</td>
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<td>Lewis (1984)</td>
<td>Lewis, at the 96th meeting of the American Economic Association, announced a hypothesis concerning the declining importance of development economics, now in the doldrums after a few spirited decades. His concerns include the declining output of new development theories and the difficulty in finding academic institutions active in this field.</td>
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<td>Barbier (1989)</td>
<td>Barbier contrasts conventional theories of natural resource scarcity with an alternative analysis that considers the trade-offs between, on the one hand, environmental quality and sustainability and, on the other, resource depletion and waste generation by the economic process. He acknowledges that trade-offs must be considered as a starting point in the construction of working models of &quot;sustainable&quot; development.</td>
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<tr>
<td>Meier (1989)</td>
<td>Meier, in asking the question &quot;Do Development Economists Matter?&quot;, argues that policy prescriptions of development economics are often ignored or ineffective because of the narrowness of the &quot;political economy&quot; approach as defined within the economics discipline. He advocates a more multi-disciplinary approach to the theory and practice of the policy-making process that borrows from earlier definitions of political economy. The result is a broader but necessarily more informal analysis, intended to increase the influence of development economists in policy-making.</td>
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### Table 5.1 (continued) Methodological Debate in (Development) Economics

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<td><strong>Category III:</strong> Economists Viewing Development Economics as Dead But Not Offering Substantive Alternatives</td>
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<td>Hirshman (1980)</td>
<td>Hirshman's article entitled &quot;The Rise and Fall of Development Economics,&quot; used two criteria for classifying development theories: (1) whether they asserted or rejected the claim of mutual benefits in North-South relations; and (2) whether they asserted or rejected the claim of mono-economics, that there is a single economic discipline, applicable to all countries and at all times. Four categories of theories resulted. The decline of development economics (assert/reject) was attributed to an onslaught from both neoclassical economics (assert/assert) and neo-Marxist economics (reject/reject), as well as to many Third World political disasters. The replacement of Hirshman's initial enthusiasm for positivist development economics with a pervasive pessimism has spurred considerable methodological debate.</td>
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<tr>
<td>Weisskopf (1983)</td>
<td>Weisskopf attributes the decline of development economics to the general decline of the liberal center in economics and politics. He cites the need for a multi-disciplinary approach to fundamental questions about the purpose of economic growth, but views the profession as becoming less rather than more open to integrating economics with other disciplines. He concludes that the most interesting work on issues is now being done not by orthodox economists, but by historians, political scientists, sociologists, and radical political economists.</td>
</tr>
<tr>
<td><strong>Category IV:</strong> Economists Viewing Development Economics as Theoretically Flawed and Offering Alternative Theories</td>
<td></td>
</tr>
<tr>
<td>Boulding (1966)</td>
<td>Boulding's essay, &quot;The Economics of the Coming Spaceship Earth,&quot; considered nature's systems as closed loops, while economic activities are linear and assume inexhaustible resources and &quot;sinks&quot; in which to throw away our refuse. He rejected the Newtonian paradigm of mechanical equilibrium and mechanical dynamics as a foundation for economic theory, replacing it with a closed-loop &quot;spaceship,&quot; or &quot;evolutionary&quot; economics.</td>
</tr>
</tbody>
</table>
Table 5.1 (continued) Methodological Debate in (Development) Economics

<table>
<thead>
<tr>
<th>AUTHOR (YEAR)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgescu-Roegen (1971)</td>
<td>Georgescu-Roegen clarified the concepts of &quot;stocks&quot; and &quot;flows&quot; in economic theory, citing the treatment of non-renewable &quot;capital stock&quot; as &quot;income&quot; flows in GNP calculations as a fatal flaw of conventional economics, contravening the laws of thermodynamics.</td>
</tr>
<tr>
<td>Daly (1973)</td>
<td>Daly proposed &quot;steady-state economics&quot; as an alternative paradigm to conventional economics. The entropy/economics problem Georgescu-Roegen discussed served as the basis for launching his alternative view.</td>
</tr>
<tr>
<td>Schumacher (1973)</td>
<td>Schumacher revived the philosophical tradition and showed how economic systems are always embedded in value systems and specific cultures. The narrow, quantitative empiricism of development economics made it possible to ignore qualitative differences, the fateful flaw being the treatment as income of irreplaceable &quot;capital&quot; of fossil fuels, the tolerance margins of nature, and the human substance.</td>
</tr>
<tr>
<td>Category V: Non-Economists Viewing Development Economics As Inadequate and Offering Substantive Ideas for Improvements or Alternatives</td>
<td></td>
</tr>
<tr>
<td>Goulet (1971)</td>
<td>Goulet is critical of economists who continue to subordinate all non-economic factors to the practical requirements of growth models. He argues for much broader definitions of development that include explicit rather than implicit assumptions about what is and what should be.</td>
</tr>
<tr>
<td>Lovins (1979)</td>
<td>Lovins is a physicist whose writing is profoundly influenced by the entropy/economics problem underlying arguments for a transition from &quot;stock&quot; to &quot;flow&quot;-based economic arrangements. Technological, political and social aspects of &quot;soft energy&quot; futures are discussed as well.</td>
</tr>
<tr>
<td>Seers (1979)</td>
<td>Seers' article in Development and Change entitled &quot;Birth, life and death of development economics,&quot; cited structural problems such as poverty, inequality, and unemployment as more meaningful development problems for economists to concern themselves with than how to achieve economic growth--problems that may have worsened while achieving economic growth.</td>
</tr>
</tbody>
</table>
Table 5.1 (continued) Methodological Debate in (Development) Economics

<table>
<thead>
<tr>
<th>AUTHOR</th>
<th>YEAR</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streeton</td>
<td>1983</td>
<td>Streeton views one of the main tasks of the economist to be the development of imaginative but carefully worked out visions of alternative social possibilities. He reviews a wide range of dichotomies in the thinking of a large group of development economists about development. He looks for a synthesis of the two views that can resolve the apparent contradictions. Hirshman's writing on the rise and decline of development economics stimulated his provocative challenges directed at economists. Streeton has held posts in economics as well as other disciplines.</td>
</tr>
</tbody>
</table>

Bibliographical notes (in order of presentation):


Table 5.1 (continued) Methodological Debate in (Development) Economics


-------- -- --
... economists are social scientists who are in the unusual position that the objects of their studies—human beings in the ordinary business of life—and their own activities are rooted in the same social context. Unlike the physical sciences, the social science of economics can claim neither scientific laws nor universal truths. In economics there can only be 'tendencies', and these are subject to great variations in different countries and cultures and at different times. Many so-called general economic models are often based on a set of implicit assumptions about human behavior and economic relationships that may have little or no connection with the realities of developing economies. To this extent, their objectivity may be more assumed than real... we shall be discussing... implicit as well as explicit value premises about desirable goals... [that] derive from subjective value judgments about what is good and desirable and what is not... [and] what should be.25

Both Rostow and Chenery neglect to make explicit the value judgments that underlie their empirical models, risking the criticism that the objectivity of their models may be more assumed than real.

The argument of Theofanides, that the trend toward increased specialization in development economics is a true index of the scientific progress of the subject, suggests an important caveat about the role of "vision" suggested by Schumpeter:

Is economic knowledge like a pyramid, with a succession of narrower and more precise truths being based upon an increasingly mathematized view of the world or is the economic universe like some vast undulating meadow that we can approach from many directions and our knowledge of which depends as much upon our intuition and experience as upon any principles of scientific surveying.26

Although Theofanides apparently shares the former "pyramid" vision of economic knowledge, I, like many other social scientists, share the latter "meadow" vision, whereby intuition and experience have methodological roles to play in the pursuit of (economic) knowledge.
Economists in the second category include Little, Lewis, Barbier, and Meier. Little, in his support of highly disaggregated micro-models to shore up the discipline as a whole, obviously shares Theofanides' pyramid vision of economic knowledge. Lewis, a pioneer of development economics, is concerned, mainly from an academic perspective, that few (in America) are taking up this discipline of study. Barbier is one of many resource economists who is concerned with the non-sustainable implications of conventional linear growth models, and willing to make explicit the difficult trade-offs necessary in the construction of working models of "sustainable" development alternatives. Meier would like to see the influence of development economists in policy-making expanded (having observed that they are often ignored or ineffective), and appeals to economists to re-examine the historical roots of political economy. The earlier practitioners and theorists of the discipline valued analyses that were broader, but necessarily more informal, than the specific mathematical formulations that have become prevalent among analyses performed today.

Economists in the third category are difficult to identify, as few would announce development economics as dead without either an alternative in hand, or tongue in cheek. In the latter case, the purpose of the announcement is to spur productive methodological debate by others, and Hirshman and Weisskopf may well have had this intention in mind when offering their articles for publication.

Weisskopf questions the fact that economists are usually content to concentrate on narrowly-defined economic issues, and to let other issues take care of themselves (or be analyzed by other social scientists). He cites evidence that gains in economic performance do
not necessarily lead to any corresponding gain in people's general
welfare; indeed, economic advances often give rise to many new problems,
even when they help to solve old ones. He argues for the role of
multidisciplinary analysis, but is pessimistic that economists working
on development problems could shed the blinders imposed by their
training in a discipline that has steadily become more inward-looking.
He views the economic problems of developing countries as being
manifestly intertwined with social and political forces that beg for
an institutional and political-economic analysis. Of particular
concern is the "black box" role of the state, a topic that the
abstractions of welfare economists have made possible to avoid
altogether (see the section on welfare economics in this chapter).

Economists in the fourth category include Boulding, Georgescu-
Roegen, Daly, and Schumacher. At the heart of their critiques is the
issue of the sustainability of conventional economic theory, once put
into practice. Various labels for the alternatives they offer include
"spaceship," "evolutionary," "entropy-based," "steady-state,"
"appropriate," and simply "sustainable" economics. None of these
alternatives has advanced sufficiently from the abstract to the
concrete to provide Third World policy-makers with a "How to Guide
Sustainable Development" handbook, but all are provocative points of
departure in the continuing methodological debate.

Non-economists (or ex-economists, as the case may be) in the fifth
category include Goulet, Lovins, Seers, and Streeton. Lovins' writing
has much in common with that of Georgescu-Roegen and Daly. Goulet,
Seers, and Streeton based their critiques on considerable experience
as advisers to Third World governments and development-oriented
agencies. They share a concern for the real world implications of gaps between theory and practice in development economics, as well as a talent for suggesting elegant, persuasive, imaginative, and broadly-based proposals for more meaningful and more sustainable development alternatives.

If the popularity of Todaro's textbook on development economics is any indication of "survivor" characteristics in the methodological debate now underway, then the survivors are likely, at a minimum, to (1) acknowledge that value judgments do exist in any economic proposition; (2) make explicit the underlying value judgments that have often remained implicit.

Welfare Economics

Contemporary welfare economics, as a sub-theory of development economics, has drawn heavily from mathematics, psychology, and moral and political science. An examination of the extra-economic premises and procedures that welfare economics has bound itself to (see Table 5.2) reveals the problematic nature of the theory, and anticipates the problematic aspects of "fitting" reality to the theory.

Even a brief glance at any welfare economics textbook would convince the reader of the considerable influence that mathematics has had on this specialized area of development economics. What is not readily observable is that, because mathematically truth resides in the structure of the syllogism, and not in the verity of the proposition's premises and conclusions, i.e., in the process of reasoning about the process of change, knowledge of flux is possible in the absence of knowledge of the nature of the thing. The thing
Table 5.2
Problematical Foundations of Modern Welfare Economics

<table>
<thead>
<tr>
<th>Extra-economic reference</th>
<th>Problematic nature of reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is welfare?:</td>
<td>Two value assumptions are indispensable to WE: (1) Individuals' preferences are to count. (2) More of any one output, other commodities or services being constant, is desirable; similarly, less input for the same outputs is desirable. Together, these imply (a) that the state of welfare of a population is the composite level of gratification of all the individuals in the group; and (b) that the level of gratification is affected by the relation between inputs and outputs. Mathematically, welfare is conceived as an aggregate of the preferences of an unclassified human heterogeneity vis-à-vis an unclassified heterogeneity of goods and services. The species of man is reduced to aggregations of individuals and their preferences, while species of goods are reduced to sources of general utility. Mathematically, truth resides in the structure of the syllogism, not the verity of the proposition's premises and conclusions, i.e., in the process of reasoning about the process of change, knowledge of flux is possible in the absence of knowledge of the nature of a thing.</td>
</tr>
<tr>
<td>Mathematical reference</td>
<td></td>
</tr>
<tr>
<td>Psychological reference</td>
<td>Psychologically, welfare is conceived to be exclusively a state of consciousness and not at all an object of consciousness. Therefore it cannot be reduced to evidence, and hence it cannot be the subject of argument, reason, or conviction. As a complete 'subjectivism,' each man's welfare is what he takes it to be. He cannot be mistaken. Yet the very idea of consciousness implies that he may well be mistaken, for the consciousness of rational men is not of non-existent things; and of existent things there must be evidence.</td>
</tr>
</tbody>
</table>
Table 5.2 (continued) Problematical Foundations of Modern Welfare Economics

<table>
<thead>
<tr>
<th>Extra-economic reference</th>
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</tr>
</thead>
<tbody>
<tr>
<td>What is welfare?</td>
<td>Morally, welfare or the good is again conceived as, for every man, unique. The political consequence of this idea is that the maximum satisfaction of preferences takes precedence over the maximum satisfaction of the requirements of justice as the norm of the common good. The practically decisive differences between polities are subordinated to their common economic property; they must all serve to gratify in the highest degree the arbitrary preferences of irreducible individuals.</td>
</tr>
</tbody>
</table>
that we want to know about is welfare, which is conceived mathematically as an aggregate of the preference of an unclassified human heterogeneity, vis-à-vis an unclassified heterogeneity of goods and services. Because the basic unit of analysis is the "individual's preference," mathematics is necessary as an aggregation device, yet misleading to the reader who expects to gain knowledge of the object undergoing change, rather than of the process of change itself. 31

Psychologically, welfare is conceived to be exclusively a state of consciousness, and not an object of consciousness. Therefore it cannot be reduced to evidence, and hence it cannot be the subject of argument, reason, or conviction. As a complete "subjectivism," each man's welfare is what he takes it to be. Yet the consciousness of rational man is not of non-existent things, and of existent things there must be evidence. 32

Morally, welfare or the "good" is conceived as being unique for every individual. The political consequence of this idea is that the maximum satisfaction of individual preferences takes precedence over the maximum satisfaction of the requirements of justice as the norm of the common good, since the individual's preference is the supreme unit of analysis. Hence, differences in polities are subordinated to their common economic property of needing to gratify in the highest degree the arbitrary preferences of irreducible individuals. 33

The basic value judgment underlying neoclassical economic theory in general, and welfare economic theory in particular, is that the individual is what counts most in any analysis. Operationalizing this concept, by defining welfare based on the mathematical aggregation of the subjective preferences of individuals, regardless of polity,
may appear on the surface to be a very precise science at work, built on solid foundations. In fact, the theoretical foundations are shaky, and the object of knowledge, human welfare, remains elusive, despite elegant mathematical formulas.

**Project Appraisal**

As we nest inwards from general (neoclassical) economic theory to development economics to welfare economics to project appraisal, we then get to the subset of project appraisal theory known as Social Cost-Benefit Analysis, or project appraisal from the perspective of the government (as distinguished from project appraisal from the perspective of the firm).

Project appraisal theory rests on an important principle concerning compensation. The compensation principle states that if those who gain from an economic policy could fully compensate those who lose, and still remain better off, then the policy should be implemented. The fact that the compensation is hypothetical, and not actually paid, distinguishes this principle from that underlying the Pareto criterion, which states that the policy is socially beneficial if no one is made worse off and someone is made better off. The compensation principle is an attempt to deal with cases which cannot be assessed on the Pareto criterion, i.e., cases in which there are losers as well as gainers, without introducing explicit value judgments about the distribution of social welfare. 34

There are two main sets of criticisms of the compensation principle. The first criticism (known as the Scitovsky paradox), shows that if in moving from situation A to situation B, the gainers in B
can hypothetically compensate the losers, it might then be possible, in the reverse move from B to A, for the gainers (previously the losers) now to compensate the losers (previously the gainers). The possibility exists because compensation is not actually paid, yet A and B are associated with different distributions of income. The second criticism begins with the observations that, as a fact of life people, and the governments which represent them, do hold value judgments about income distribution. For example, a policy that made the rich richer and the poor poorer would be unlikely to gain widespread acceptance based on the hypothetical demonstration that the gainers could compensate the losers and still remain better off, knowing that, in fact, compensation would not actually be paid. Designing a criterion that deliberately abstracts from distributional considerations ignores the obstacle that economic policy-making, in practice, is often explicitly concerned with such considerations.35

Meta-theoretical Analysis

At the fourth level of Analysis (see Figure 5.2), i.e., the meta-theory of SCBA, a contradiction is exposed that underlies contradictions at all other levels of analysis. In this section it is argued that it is not rational to assume a clean bifurcation of fact and value, and thus of means and ends, if the result of the knowledge enterprise is to have any real usefulness in predicting the consequences of acts. This argument sheds doubt on the theoretical underpinnings of SCBA, as well as the usefulness of the activity of SCBA, in conventional terms. It also provides a rationale for the construction of an alternative SCBA. The purpose of this alternative construct is to
Positivist/Empiricist Approach
(quantitative, narrow focus)

Social Science Methodological Debate

Alternative Approaches
e.g., Hermeneutical/Interpretive
(qualitative, broad focus)

Figure 5.2. Social Science Method of Inquiry: Meta-Theory of SCBA
cross-check the results of conventional SCBA activities, by taking a broader view of what is actually going on within that activity, and why.

Empirical Approach to Inquiry in the Social Sciences

Social science, as construed by the empiricist, has at least the following five features:

1. A commitment to the idea that scientific terms need empirical meaning, i.e., that they can be given "operational definitions";

2. Although the researcher may have values which motivate inquiry, the results of good research are value free;

3. Science searches for laws which are of the form "Whenever X, then Y," (or "Whenever X, then Y with the probability K." Mathematized and quantitative techniques presumably give us access to causality;

4. Theory is construed as the systematization of "laws." Computer modelling presumably gives us access to "causal interaction";

5. Explanation is through subsumption of events (particulars) under laws.

In view of policy analysis, a sixth feature is:

6. Policy involves the statement of goals (ends), and then the realization of the best means to achieve these. This involves science, since it involves hypothetical imperatives of the form, "If you do X, then Y occurs."
It is argued by Shapiro that during the first step of social science inquiry, i.e., in the process of forming operational definitions, certain interests are promoted and others are left out. The activity of making assumptions, and operationalizing the particulars of the mathematized and quantitative technique, is done within a limited context. By definition, certain interests fall outside the boundaries of the actual (computerized) model used, and it is these interests that may be of significance in explaining the problematic nature of a particular policy in the real world.\textsuperscript{39}

Manicus argues that there is a crucial difference between scientific hypotheses in the natural sciences, and proposals for action (policies) in society. The former may be tested, corrected, tested again, etc., this self-corrective nature of the scientific process providing the maximum assurance that eventually "truth" will be the outcome of the inquiry. In terms of decision-making regarding preferred policies to direct action, there is no such saving grace. The consequences of the alternative courses of action can only be tested in the imagination, which is subject to all of the pitfalls of reasoning by analogy. In the specific context of defining a specific goal, that goal could be viewed as the means to yet another goal, and so on, so that the bifurcation of means and ends, and associated facts and values, is never as neat as quantitative models might suggest. In the iterative process of designing a proposal for action, the consequences of acts are all probabilities. What actually does happen is no longer a probability, it is an actuality that we must live with.\textsuperscript{40}
Hermeneutical Approach to Inquiry in the Social Sciences

A hermeneutical, or critical and interpretive approach to inquiry, acknowledges that there is no clean bifurcation between fact and value, and associated means and ends. By ignoring the existence of presuppositions that precede the activity of making assumptions and building quantitative models, it is possible to:

1. Promote some interests while excluding others from consideration;
2. Give a false impression of the "hardness" of the outcome of the model that is to guide decision-making;
3. By suggesting that the data are "hard," advise on a particular policy and course of action that may have unintended (and unacceptable) negative consequences for human beings (other than the policy analyst).

Unintended and negative consequences of policy-advocating activities, such as conventional SCBA, suggest a need for caution in designing policies based solely on the empirical approach outlined above. By deliberately attempting to articulate the spectrum of interests relevant to a particular policy, and its possible consequences, a safeguard is built into the policy-advocating process. This deliberate articulation of interests necessarily involves an interpretive and intuitive approach to inquiry.

Alternative Construct of SCBA

The alternative construct of SCBA proposed in this research is based on hermeneutical principles, and is intended primarily for the purpose of interest articulation. This articulation allows for a
deeper exploration of the consequences of policy actions than allowed for in the empiricist approach to SCBA. Its primary usefulness is in preventing unintended, yet avoidable, negative consequences of policies selected for implementation as a result of the activity of conventional SCBA.
NOTES TO CHAPTER V


Alternatives to the standard view were available, but largely ignored, until the Kuhnian or paradigmatic critique was read and absorbed. Paradigms became the rage, and key themes in logical empiricist philosophy of science came under scrutiny by the larger community of social science scholars.

Other labels for the older paradigm are the growth paradigm, economic determinism, economism, and the mechanistic paradigm (referring to the analogy of hydraulic systems to market system supply and demand equilibrium theories).

There is no consensus on labels for the newer paradigm. One label is the "entropy" paradigm, proponents using the thermodynamic laws as a basis for refuting the endless throughput notions of conventional economics. Other labels are steady-state economics, Cartesian economics, Buddhist economics, solar age politics, ecological economics, the systems paradigm, the stewardship principle, or more simply, the ecological perspective. Henderson discusses each of the associated authors at considerable length.

2Henderson, p. 176.

3Hermann Daly (1977), Steady-State Economics: The Economics of Biophysical Equilibrium and Moral Growth (San Francisco: W. H. Freeman and Co.).

4Robert McNamara, president of the World Bank, launched the trend in 1972 with his address at the annual meeting. Other economists, especially those associated with the World Bank, wrote prolifically on the subject. They include Irma Adelman, Cynthia Taft Morris, Mahbub ul Huq, Hollis Chenery, Deepak Lal, Hans Singer, and Jan Tinbergen.

5Examples are Rachel Carson (1962), Silent Spring; Barry Commoner (1971), The Closing Circle; Jay Forrester (1971), World Dynamics; Howard T. Odum (1971), Environment, Power and Society; Dennis Meadows et al. (1972), The Limits to Growth; and Paul Ehrlich et al. (1977), Ecoscience.

6Resources have value, and therefore must be priced in some form or other, so as to restrict consumption and pay for their care and maintenance. The marginal utility theory of value used by neoclassical
economists deals with relative, but not absolute scarcity; the addition of entropy as a valuation concept is an attempt to deal with the concept of absolute scarcity.

7 Paul Samuelson used this imagery in the 11th edition (1980) of his widely-used introductory economics text, Economics.


13 Todaro, p. 61.

14 Ibid., pp. 64-65.


18 Todaro, pp. 63-64.


Ibid., pp. 10-11.


Weisskopf, p. 897.


Ibid., pp. 20-22, 29.

Ibid., pp. 22-25, 29.

Ibid., pp. 25-29.


36 I am grateful to Peter Manicus for having provided me with this outline of the empirical approach to inquiry.


39 Shapiro, pp. 11-25.

CHAPTER VI
DYNAMICS OF ALTERNATIVE SCBA CONSTRUCT

Introduction

A static version of the alternative SCBA construct was presented in Chapter II (see Figure 2.1). In this model four nested levels of analysis were presented, and in Chapters III to V each of the levels was, in turn, discussed individually.

In this chapter a dynamic version of the alternative SCBA construct is discussed. Six pathways exist to link up the four levels of analysis (see Figure 6.1). Each pathway has two vantage points, depending on whether the view is from the higher (more abstract) or lower (more specific or localized) level. For example, a view of the village from the national level perspective is labelled F1, while a view of national level SCBA from the village is labelled F2, and so on, giving a total of 12 potential perspective points.

Drawing on imagery suggested earlier on, imagine that you are about to take a hike through a meadow that has four knolls. To enrich the analogy, further imagine that in order to have an especially good vantage point, these are mountains rather than knolls. The mountains are named Mt. Meta, Mt. Development, Mt. National, and Mt. Village (see Figure 6.2). During the course of the hike, a curious pyramidal structure is observed on the top of Mt. National. You have a look inside of that structure, as well as from the outside, from both nearby and from faraway.
Figure 6.1. Alternative Construct of SCBA: Dynamic Aspects

Legend: Pathways
A Meta-theory/Theory of SCBA
B Meta-theory/Technique and Activity of SCBA
C Meta-theory/Local Context of SCBA
D Theory of SCBA/Technique and Activity of SCBA
E Theory of SCBA/Local Context of SCBA
F Technique and Activity of SCBA/Local Context of SCBA
Figure 6.2. SCBA: Points of Perspective
There is one condition to taking this hike. For now you must bear with me in my role as the author of this chapter, and thus as your hiking guide. From some vantage points you might have wanted a longer look (or wished that I had better vision), while at others you grow restless. If you find the territory interesting as a result of this hike you are, of course, encouraged to hike the landscape again at your own pace and direction. Or more importantly, you might use the conceptual and organizational principles I used in building this construct to build a similar construct, specifically designed to scrutinize the social and economic costs and benefits of a particular problem you are studying. So constructed, your model would allow you to view your problem from a broad perspective, complementing analysis from the narrower perspective that a more conventional model of this activity might suggest.

For my own purposes, I am particularly interested in having a close look at the pyramidal structure on Mt. National in Fiji, in the case of rural electrification analysis. For this reason, the views from the more distant peak of Mt. Meta will be brief (A, B, and C), as will that from Mt. Development to Mt. Village (E).

**The View from Mt. Meta**

From Mt. Meta, meta-theoretical perspectives at the level of social science methods of inquiry provide three views of SCBA: (1) the theory of SCBA (A1); (2) the technique and activity of SCBA (B1); and (3) the local context of SCBA (C1).

From each of these three meta-theoretical viewpoints, the underlying problem in terms of conventional SCBA is the narrowness of the
viewpoint. The boundaries of the objectivist/positivist/empiricist approach to social science inquiry are defined such that many important questions about the knowledge enterprise at hand go unasked (and hence unanswered). As evidence mounts that policies that result from this approach are inadequate for the achievement of stated goals, the need increases for deeper analysis of the theoretical underpinnings of the problem that prompted the policy in question. The purpose here is to widen the boundaries of conventional SCBA to include the level of presuppositions as to how and why the important actors on a particular development stage enter (and exit) their roles. In doing so, questions are asked about whether the present development model supporting the activity on this stage is likely to result in "development" that is positive and meaningful to the people whose lives it affects. If doubts arise, the model must be rethought and perhaps retooled, based on these doubts, and with implications for possible changes in the cast of characters and their respective roles on this stage. This widening of the analysis necessitates a departure from the traditional realm of quantitative analysis to qualitative analysis based on hermeneutical principles.

Despite the briefness of the view presented here from Mt. Meta, the reader should keep in mind that contradictions exposed between this level and the lower levels of analysis, as a result of over-reliance on the empiricist approach to knowledge, were the driving force in proposing this alternative construct of SCBA.
A View to Mt. Development

From a meta-level perspective, the theoretical underpinnings of conventional SCBA, namely development economics, welfare economics, and project appraisal theory, were found to be problematic in the Chapter V section on "Theoretical Analysis." The usefulness of development economics as a theoretical guide to the real world has been questioned by both economists and non-economists. The result is a growing methodological debate. In Kuhnian terms, a new paradigm of economic development theory may yet emerge, forcing the rewriting of conventional textbooks on the subject. With the growing realization that truth in welfare economics lies in the structure of the mathematical syllogism, and not necessarily in the verity of the propositions' premises and conclusions about aggregated preferences of individuals, the same may prove true about welfare economics textbooks. In the case of the compensation principle in project appraisal theory, there is also a poor fit between the theory, and the real life situations that the theory is intended to guide.

A View to Mt. National

In a meta-theoretical view of the technique and activity of SCBA, at the national level, problematic aspects of the empiricist theory behind the technique are translated into questions as to why governments and international development agencies carry on with the activity of SCBA, in view of its shortcomings. In the clean bifurcation of fact and value, means and ends, economics and political science, and consequently the private and public sectors allowed by the empiricist approach to understanding and explaining change in society, the rules
of the game of the activity of SCBA are obscured and hidden from view by the principal actors making those rules. As we learn more about the rules, we also learn more about why some interests are served more than others as a result of participating in the activity of SCBA.

A View to Mt. Village

In a meta-theoretical view of the local context of SCBA, there are profound differences between the principles guiding empiricist inquiry in the social sciences, and the principles traditionally guiding life in a Fijian village. While a clean bifurcation of the sort mentioned above is permitted in the former case, in the latter case no such bifurcation exists. Writers familiar with the local context typically acknowledge that villagers wanting to participate in the modern development process must resolve this basic contradiction or dilemma. It is, however, the nature of dilemmas that there are no clear-cut solutions.

The View from Mt. Development

From Mt. Development, theoretical perspectives at the level of development models provide three views of SCBA: (1) meta-theoretical considerations behind these development models, in a general sense, and specific implications for the economic theories underpinning SCBA (discussed in Chapters IV and V, and also above); (2) development theories underpinning the technique, and guiding the activity of SCBA, at the national level; and (3) the local context of development theories, proposed from afar and translated into national level policies administered from above.
Development theories underpinning the technique of SCBA are discussed in Chapters IV and V. In reviewing the history of SCBA, it was noted that the existence of both development plans and formal SCBA documents are typically prerequisites to applying for the "softer" international and regional development agency loans available to developing country governments for major development projects.

Before discussing the interests of the development banks, it is important to note whose interests we are primarily talking about. The developed countries hold the majority of voting power in all of the development banks, as well as in the International Monetary Fund. In Fiji's case, the World Bank, the ADB, and to a lesser extent the IMF have played a lending role in Fiji's economy. The United States in the case of the World Bank, Japan in the case of the ADB, and Europe in the case of the IMF, have traditionally held the majority of power and appointed the president of these organizations. The voting power of the independent and developing countries of the South Pacific, even in bloc form, is so small that it is clearly insignificant in terms of influencing lending policies.

The management of a development bank makes decisions as to which capital markets to borrow money in for on-lending to developing member countries. In recent years the developed countries with a surplus of capital available for on-lending have included Japan, West Germany, and Switzerland, among others. A typical loan spread expected by the development bank in its on-lending activities is between one and two percent, i.e., in rough terms, this percentage of the funds lent to developing countries returns to the bank as profit.
During the first development decades, the development banks encouraged the developing country governments to take out major loans for infrastructure projects. According to conventional wisdom, roads, airports, electricity, communications, and water supply are considered essential inputs to successful attempts to achieve economic development and economic growth. Once these projects are in place, it becomes feasible to plan for major projects in the agricultural processing, manufacturing, industrial, and services sectors. The latter projects are of prime interest to private sector capitalists, as infrastructure projects are typically more difficult to show a profitable rate of return on.

Thus the state's primary role in relation to the private sector becomes one of guarantor and protector of the interests of private capital. For the (developing) nation, the engine of development is the entrepreneur, releasing the productive energies of individuals, captured by "irrationalities" in the prevailing pre-capitalist (and "backward") social order.

For the global capitalist system as a whole, the engine of development is an efficient network of facilitators of the interests of private capital. As a major source of advice on development strategies, as well as investment capital for the implementation of these strategies (directly from the development banks, and indirectly through their coordinating efforts among the commercial banks), the bankers took center stage during the postwar development decades. In this role they are able to promote and protect the interests of private capital in the developed countries, and to a limited extent similar interests in the developing countries.
Developing countries play a crucial role in the economic growth strategies of the developed countries. As suppliers of (cheap) raw materials and trade outlets for exports of goods and services, cooperative attitudes on the part of the developing nations are of considerable interest to the richer nations. Development projects aimed at the supply of strategic raw materials, such as petroleum and minerals, to the developed country markets typically require a large capital base for entry into such projects. The bankers facilitate a role for the large private firms of the developed countries in these projects. They also encourage projects in the developing countries aimed at economic growth, in order to ensure healthy markets for the exports of the richer nations.

From the perspective of the private sector in the richer nations, cooperative attitudes on the part of the developing nations entail open economies and lines of communication. In the larger developing countries, this openness is pursued on a government to government basis, as well as through the efforts of the international development bankers. In the smaller developing countries, this pursuit is typically delegated by the governments of the developed countries, in large part, to the international and regional development bankers, for practical reasons.

The main agenda of the international and regional development banks thus becomes one of keeping lines of communication open, policies in place that ensure the openness of small, developing economies, and projects in the pipeline that facilitate profit-making opportunities for the private sector. Once independence is acquired, the young nations become eligible for membership in these banks. Aspirations
for the achievement of levels of material well-being enjoyed in the richer nations propel development planners and politicians of the young nations into increasingly complex and intricate negotiations with the bankers. In the earlier stages of contact, financing for relatively straightforward infrastructure projects is the focus. As the development process continues, public debt created by these projects typically escalates. In the more mature stages of the "development" process, accumulated debts all too often threaten to engulf the economies of these young and aspiring nations. In these cases, the attainment of positive economic growth, rather than flat or negative growth, becomes the overriding concern of both the government and the banks.

The existence of this unintended consequence of go-go lending practices in the earlier development decades helps to explain the evolution of lending policies on the part of the bankers. The literature is vast on this subject, but the major trends at the World Bank and the ADB, as evidenced in the literature, are away from project lending, and toward greater program and sector lending, with an emphasis on structural adjustment loans (SALs) in countries with a debt problem.² The latter represent a move toward medium-term financing strategies, rather than the traditional long-term investment strategies promoted by these banks. Nations with balance of payment problems have traditionally sought short-term financial assistance from the IMF. The conditionality attached to many of these loans, requiring structural reform of fiscal policies in exchange for loan disbursement, suggests a move towards more medium-term strategies at the IMF as well.³
Medium-term strategies on the part of the bankers encourage the debt-ridden governments to formulate and implement policies for structural reform and stabilization of their economies. The restructuring of macro-economic and sector-specific policies is typically the domain of the World Bank and the ADB, while the IMF concentrates on fiscal policies. An example of the former is a "pump-priming" loan, i.e., one that injects borrowed capital into the economy on the condition that specified reforms are undertaken. An example of the latter is a Compensatory Financing Facility (CFF) loan, disbursed on the condition that a major currency devaluation is implemented. These restructuring attempts involve increasingly frequent contact between governments and bankers, in what some term their "fire-fighting" efforts.4

The conditionality attached to these loans has become a subject of considerable debate in the development literature.5 On the one hand, the bankers argue that the conditions that they insist on are necessary for the survival of the economy in question, as well as for the international financial system as a whole. On the other hand, the would-be recipients of these loans argue that such conditionality represents a violation of their national sovereignty and right to determine for themselves such policies.

Public sector loans have typically been implemented by agencies with some degree of autonomy from the central government. This phenomenon is a result of insistence on the part of the development banks that economic-commercial criteria are used by the management of the implementing agency, and the possibility of political interference in the achievement of this aim is minimized. The use of such
criteria helps to ensure that sufficient income accrues to the implementing agency to enable it to pay back the loan in a timely manner. Fatouros argues that such loan provisions, calculated to safeguard the lender's interest in being repaid, limit considerably the state's freedom of action within its own territory, and drastically reduce the legal and policy options open to it in implementing the project. He further argues that the "desire of some governmental officials (whether political ministers or technical civil servants) to ensure that certain tasks will be carried out and will be assigned top priority . . . enhances their strength domestically . . . in political terms."6

In the 1980s the bankers have increasingly urged the governments of the developing nations to privatize national assets whenever possible. This trend away from public sector involvement in the economy, and towards a greater role for the private sector, represents a significant policy shift on the part of the bankers since the earlier development decades. This advice is based on similar efforts by the developed countries themselves (as evidenced by Reagonomics and Thatcherism), as well as an attempt to inject capital into ailing government budgets.7 Implementation of privatization policies in the developing countries further increases the exposure abroad of private sector interests originating in the developed countries.

As a result of the increasing involvement of the international and regional development banks in the economies of the small, developing nations, the project appraisal capacity of the latter has come under close scrutiny by the bankers. Typically this capacity has been deemed
to be inadequate, resulting in technical assistance and loans specifically for the purpose of augmenting this capacity.

**A View to Mt. Village**

Development strategies advocated by the development banks are typically top-down strategies. Such strategies are a logical result of "trickle-down" development theories popular during the earlier development decades (see Chapter V). Oliver, in his book *Trickling Up: A Strategy for Development Where the People at the Bottom Matter*, comments that such theories did not work, or at least ran out of steam, because the massive injections of capital must have been made with sticky money... money that kept sticking all the way down the ladder, those at the bottom lucky if they got just enough crumbs to stop them from revolting. 8

Bottom-up strategies have been advocated in recent decades, not as a total replacement for top-down strategies, but more as a complementary approach to counteract the sticky money phenomenon, as well as to ensure that projects proposed for lending at higher levels addressed genuine needs and desires of the targeted populations. The most common term in the development literature used to discuss such strategies is decentralization. 9 In arguing for a "trickle-up" approach to development, Oliver rejects the assumption that the people are there to serve the government and that the goals that count are national goals. In his view, the government is only there to serve the people, and the goals that count are those forged at the village level, which when taken collectively make up the district and national goals. 10 Aggregations of goals, objectives, and targets stated at
the local level constitute a quantitative and mathematical exercise that would give new direction to the efforts of national development planners.

**The View from Mt. National**

From Mt. National, perspectives at the national level provide three views of SCBA: (1) meta-theoretical considerations of what constitutes the activity and technique of SCBA; (2) development theories reflected by the technique and activity of SCBA, as evidenced by SCBA practices in a specific developing country; and (3) assumptions made at the national level, in the performance of SCBA, about the local context of the policy in question.

**A View to Mt. Meta**

Meta-theoretical considerations of what constitutes the activity and technique of SCBA are, in a general sense, the focus of this research. As such, this broad perspective pervades the analysis at all levels, and poses questions not asked by conventional SCBA.

**A View to Mt. Development**

In the discussion above of the global role of the development banks, it was noted that the banker typically arrived on the national development stage shortly after independence. The entry of the banker into the national planning process of a small, developing country was encouraged from both sides: the government was eager to qualify for "soft" loans, and the banker was eager to increase the exposure of developed country private capital interests in the nation seeking a
loan, as well as serve the direct interest of the bank in its on-
lending of capital borrowed in developed country financial markets.

The role of the banker, once inside the policy circle, continued
to deepen over time. SCBA was at first required for specific infra-
structure projects, and then for a variety of other purposes associated
with program and sector-based lending, as well as privatization efforts.
In cases where the project appraisal capacity of the borrower was
considered inadequate, short-term TA for a specific purpose evolved
into longer-term TA for the purpose of augmenting the government's
in-house project appraisal capacity. In my view, the intent of the
latter TA activities was not to ensure that the government would be
capable of in-house appraisal, without further reliance on outside
experts, but to ensure a close fit between the technique used in-house
and at the bank, thus facilitating future lending on a larger scale
and an expanding policy adviser role for the bank.

In the case of Fiji, the first project funded by the World Bank
was a road project, followed by a hydroelectric project, more road
projects, and most recently a pump-priming project in the agricultural
sector, as well as project appraisal TA. The only project reviewed
in the development literature, to my knowledge, has been the first
major road project. Chand detailed the project appraisal phase, and
concluded that the decision to implement the project had already been
made before economic analysis was carried out. In his view, appraisal
efforts merely served the purpose of ex-post justification of a decision
made on extra-economic (political) grounds. He further concluded that
conditions placed on the loan were severe, and that in sum the Fijian
state was heavily influenced in its decision to go forward with the
project by the interests of a certain group of domestic capitalists, as well as international private capital interests. Anticipated profits in the tourist industry were identified as the primary factor motivating this pressure on the state.\textsuperscript{12}

Few have access, and perhaps none have the political will, to obtain the detailed records necessary to make a similar analysis of the Monasavu hydroelectric project in Fiji. It was, however, noted by Cole and Hughes in \textit{The Fiji Economy, May 1987: Problems and Prospects}, that at the end of 1987, after two military coups, and an associated downturn in the tourist industry, and two currency devaluations totaling 33 percent, the FEA had to borrow in short-term capital markets at rates of up to 26 percent in order to service external debts.\textsuperscript{13} As noted in Chapter IV, once the investment decision was implemented, the option no longer existed to save foreign exchange by not buying petroleum during periods of lagging demand for electricity -- the external loans had to be serviced, regardless of the internal conditions.

In both road and electricity projects, the World Bank and the ADB have coordinated their efforts in Fiji. By the end of 1988 the ADB had made ten loans to Fiji, and had been involved in 21 TA projects. The energy sector accounted for nearly 40 percent of the total lending of $94M, followed by 30 percent to the agricultural sector (including pump-priming). The remainder was loaned for transport and communications projects, as well as to the Fiji Development Bank for on-lending purposes. In the \textit{Asian Development Bank Annual Report 1988} it was noted that the bank's strategy emphasized the role of the private sector, directly or indirectly through development finance institutions.
"Policy dialogue" with the government on privatization of government assets, tariff issues in the power sector, and a revitalization of the tourist industry were also mentioned. Thirteen of the 21 TA projects were for advisory and operational purposes.\textsuperscript{14} In 1989 implementation of a project appraisal TA project was underway as well.\textsuperscript{15}

In the case of the TA project for rural electrification, funded in 1984, the Fiji government decided to fund four of the 37 specific projects identified in the ADB consultant's report, all of which were on the main island. Rather than seek ADB funding, at an interest rate close to 10 percent, the government decided, instead, to earmark $9.3M in interest-free loans offered by the People's Republic of China for rural electrification. These projects had been largely implemented by 1989.\textsuperscript{16} In 1988 the acting Director of Energy indicated that the World Bank and the ADB were urging the government to privatize the FEA, as well as take out further loans for RE projects.\textsuperscript{17} Given the complexity and political sensitivity of land tenure policy, privatization of the FEA would involve answering many thorny questions that the government is not willing to ask in the present political climate.

**A View to Mt. Village**

In the national perspective, development concerns of Fijian villagers present a very real dilemma to the government planners and policy makers. This dilemma was mentioned above, and involves the conflict of values and belief systems behind attempts to modernize, and at the same time protect the political interests of the Fijians as
indigenous people, while preserving their traditional culture and society.

A number of prominent Fijians have spoken and written on this subject, and below is a sample of what two of these people have had to say.

At a South Pacific islands conference held in August, 1988, in Tokyo, Ratu Sir Kamisese Mara, the Prime Minister of Fiji, acknowledged this conflict:

The greatest challenge facing Pacific island nations [is] how to promote development and change while maintaining traditional lifestyles.

The colonial and Christian legacy had enshrined in the South Pacific island states the egalitarian ideas of Western civilisation with its emphasis on individualism. And as if this is not enough, we are constantly being reminded by our friends in the West, fuelled, among others, by their own mass media and trade unions, that there can be no acceptable standard or code of behaviour other than total adherence to the unencumbered, unrestrained and unfettered rights and freedoms of the individual . . . By adopting the Western style of democracy the states had secured political independence or self-government . . . But while we now have control of the political destiny of our nations, we have also come to realise that the Western ethics and values that we have incorporated and institutionalised in our legal system and government administration have actually had the cumulative impact of undermining the very essence of our traditional Pacific island societies.

While the states had acknowledged that their transition from a subsistence to a money-based economy had meant adopting foreign technology and development, they had not fully appreciated the impact of this change on social and cultural systems. The people of the island nations had come to aspire for better health and education, improved housing, clean water supplies, electricity and a reliable source of income. Invariably this led to a constant movement of our people into towns and urban areas in search of a wage or salary earning job.

There was no doubt that increased opportunity for employment was the most immediate of the development
needs of the states. To be able to provide this, it was necessary to allow increased foreign investment and to bring in new technology and skills and to attract increased tourists to the country. But these increased the risk of over-exposure to foreign economic domination.

But for us in the South Pacific, if we are to protect and safeguard our tradition, our culture and social systems, development through modernisation and maintaining an open economy can only be one that must involve a mutual accommodation of the old and the new in order to meet the demands of the present and future.18

Asesela Ravuvu, Director of the Institute of Pacific Studies at the University of the South Pacific, and an adviser to the interim government, studied social and economic changes in a number of villages in the interior of the main island in considerable depth. His post-coup book, Development or Dependence: The Pattern of Change in a Fijian Village, contains many deep reflections on the past, the present, and the future of the Fijian people. On the subject of the Fijian dilemma, he writes that

Fijians have long been in a dilemma. Continually advised by their leaders of the importance of maintaining their customs and traditions which insist on communalism, at the same time they have been urged to be involved in commercial enterprises which emphasise individualism, and also to accept the policy of multiracialism which the then Alliance Government of Ratu Sir Kamisese Mara had been advocating. Although, the Alliance Government policy of encouraging multiracialism and commercial individualism among Fijians and other races living in Fiji is important it must not be carried to the extent of challenging Fijian paramountcy and the status-quo of traditional Fijian leadership.19

Ravuvu concludes that the coup, "as far as most Fijians are concerned, was a blessing in disguise. It enabled them to satisfy their quiet but strong feeling that Fiji must remain a Fijian country."20
Ravuvu also has something to say about the international development agencies.

In their eagerness to satisfy their aspirations and those of their rural fellowmen who were deprived of the benefits of introduced technology widely available to urban dwellers... leaders were prompted to ride on the band-wagon of rural economic development inspired and supported by such international financing institutions as the World Bank, the Asian Development Bank and the United Nations development agencies. With technological advice and finance from these organisations, a number of rural development projects were established with the hope of improving the living standards of the so-called "rural poor."

These changes, commonly believed to be "development," were and continue to be, national and international in origin and scope. Yet because rural people have little control over them, it has become inevitable that the rural areas have evolved into a peripheral position and dependency status. Lacking the capital and technical resources to fully exploit their natural resources for their own benefit, rural people have had to depend on capital and expertise from national and metropolitan centres. Such dependency has resulted in the diversion of the exploited rural resources to such national and international centres where they are processed and distributed. This has led to the loss of rural self-sufficiency. Moreover with the rising tide of wants and the loss of production for local needs, a new and frightening dependency has resulted, where the whole nation has come to depend on forces beyond its control.21

He traces the development of this dependency syndrome, worsened by the advice and finance provided by international development agencies, back through the colonial administration period. He notes that the changes made in the Fijian Administration on the eve of independence, based on the advice of foreign "experts" (see Chapter IV), hastened this process. He also discusses recent attempts to restructure the FA, initiated by the Prime Minister, assisted by Pacific Islands Development Program (East-West Center) consultants, and based on
traditional social and legal institutions. He is skeptical that this restructuring can stem the tide of modernization and dependency sweeping through the villages, and jeopardizing national sovereignty in the process. 22

Inside the SCBA Pyramid

Mentioned briefly in Chapter IV, and detailed in Table 6.1, are several methodological problem areas I noted in the SCBA technique used by the ADB consultants. In the case of the Eastern division of Fiji, the ADB consulting team was not able to identify any projects that would shift the basis of the analysis from five hours of lighting in the evening for welfare purposes, to a longer operating basis for productivity applications. Despite showing the cost-effectiveness of diesel generators or solar lighting kits as a preferred source of lighting to kerosene and benzine lights, the ADB was not interested in funding any of these village lighting projects and proposed, instead, that the government subsidize all such projects in the outer islands. Lowering the load factors to more realistic figures, based on my field observations, and fixing up the methodological problem areas noted in Table 6.1, would not change the conclusions of the ADB consultants, but merely increase the subsidy level to be borne by the government.

The most severe criticism of the technique used by the ADB consultants is, however, the omission of the who part in their analysis. Two major questions have not been asked about the targeted population. The first question is whether electricity is in fact their highest development priority, putting an electricity project at the head of the list of projects to be reviewed at higher administrative levels.
<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Description</th>
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<tbody>
<tr>
<td>No Premium is Placed on Foreign Exchange</td>
<td>The shadow exchange rate (SER, or shadow price of foreign exchange (FX)) used in the TATA computerized analysis was 1.0, i.e., no premium was placed on foreign exchange. The SER is defined as the reciprocal of the Standard Conversion Factor (SCF), a ratio between the official exchange rate and the shadow exchange rate. Although an elaborate attempt was made in the appendix to calculate the SCF from trade data, the SCF of 0.9 obtained from these efforts was not reflected in the actual SER which went through the computer. The determination of a &quot;correct&quot; SER involves subjective judgment on the part of the analyst. Trade data are one way to get at the scarcity value of FX, and estimates of the overvaluation (or undervaluation) of local currency are another. Siwatibau used values of 1.2 and 1.4 in her sensitivity analysis of the SER factor in a RE project.</td>
</tr>
<tr>
<td>Debt Servicing and Principal Payments are not Entered Into Cost Streams (Systems Boundary Problem)</td>
<td>In economic analysis (EA), capital expenditures/ debt servicing and principal payments are accounted for in the year they occur, since society incurs the debt during the year of expenditure. This convention in EA is substantively different from the treatment of capital in financial analysis (FA), where capital expenditures are amortized. In the TATA report, debt servicing and principal payments were not included as cost entries in SCBA, on the apparent assumption that these payments would not cross the national accounting border. This assumption implies that the project loans would be from a bank, as is usually the case in developed country practices. This is often not the case in small developing countries, such as Fiji, as principal and interest payments on foreign loans do cross the national accounting border, i.e., they are not transfer payments within Fijian society, and they do represent the expenditure of scarce foreign exchange.</td>
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Table 6.1 (continued) Methodological Problem Areas of SCBA Technique Used by ADB Rural Electrification Consultants

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Description</th>
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<tr>
<td>Debt Servicing and Principal Payments are not Entered Into</td>
<td>(requiring the shadow pricing of these payments, once they are entered). This assumption by the consultants is also present in a project planning manual prepared by a United Kingdom consulting firm for use by Fiji government project analysts. In both cases there has been a failure to translate the developed country experience to the developing country context.</td>
</tr>
<tr>
<td>Physical Units, As Well as Costs are Discounted in Least-Cost Solutions</td>
<td>Physical units, as well as monetary units, are discounted in least-cost solutions (e.g., present value of costs/present value of project output, i.e., kilowatt hours) in the TATA report. This unusual convention has crept into project analyses of the international lending agencies during the 1980s, with no obvious explanation for its rationale. It is conceptually clear in the CBA literature that a dollar received in the future is worth less than a dollar received in the present, hence the need to discount cash flows. It is not conceptually clear, however, that a bag of cement, for example, produced during the tenth year of a project is no longer a bag of cement, but some fraction of a bag (depending on the discount rate chosen). The application of this practice of discounting physical units, to the output of electricity projects (i.e., kilowatt hours), is an equally confusing concept, deserving of explanation by those using this convention.</td>
</tr>
</tbody>
</table>

Sources:  
for possible funding. The second question is who would be operating the RE equipment, once the majority of proposed project funds had been spent on capital expenses.

As indicated in Chapter III, the assumption at the national level that an electricity project is the highest priority in village X, without a detailed attempt to determine the validity of this assumption at the village level, is unwarranted. I made no attempt during my fieldwork to weigh the priority of an energy project vs. a project in some other sector, but my overwhelming impression after hundreds of hours in electricity committee meetings was that smokeless stoves represent a greater expressed need of the villagers than an improved quality of lighting does. This possibility is worthy of detailed analysis before taking the first step in performing conventional SCBA of a RE project for village X, Y, or Z.

The assumption that at least one villager in each village proposed for electrification in the outer islands had already received training appropriate to operating RE equipment is not warranted, based on even superficial knowledge of village conditions. The further assumption that it sufficed to mention training briefly in the text of the SCBA report as a general need, without actually calculating the (considerable) costs of a training component in the economic analysis, is a grave indictment of the technique and activity of conventional SCBA, based on evidence in the Fiji case.

The View from Mt. Village

From Mt. Village, Fijian villagers have a view of what goes on at the national level, as well as a view of general principles guiding their existence, in a metaphysical sense. It is not realistic, however,
to speculate on their view of methodological inquiry in the social sciences, or even development theories. These concepts are alien to their way of thinking, and a discussion of C2 and E2, in terms of the alternative SCBA construct (see Figure 6.2), would be meaningless.

Speculation on my part as to how villagers view what goes on at the national level is subject to the caveat, mentioned in Chapter III, that as a non-Fijian analyst there is a limit to the depth of any analysis I might make on this subject. For this reason I have quoted several Fijians at length on this subject, as they have a far deeper understanding of the problems Fijian villagers face in their interface with the modernization process than I do. In the preceding section I have applied my limited knowledge of village conditions and the villager's internal calculus to an analysis of the problematic aspects of relying too heavily on conventional SCBA technique as a tool for advising national policy makers.

Several anecdotes from my fieldwork are, however, perhaps relevant to the subject of the view from Mt. Village to Mt. National. They also conclude our hike around the landscape of SCBA with a touch of humor to an analysis of a situation in Fiji that deeply worries those concerned with the future of Fiji and the Fijian people.

After the disappearance of his rubber slippers in the first village we surveyed during fieldwork, my husband inquired unsuccessfully in every village cooperative store after another pair. After ten such inquiries a shopkeeper finally explained that they no longer sold them because they always sold out so fast, and it was too much trouble to try to keep them in stock. The capitalistic system has apparently yet to grip the minds of most village level shopkeepers.
Another fieldwork incident occurred in the Lau islands (Moce), where it had been two months since a boat had brought supplies to the village. Even in the best of times paper is a rare item in most households, and our hostess went to great lengths to find paper to stock the outhouse with. I was amused at the result: cut into pieces was the upcoming schedule of the tri-annual visits (by helicopter) of the chief magistrate from Suva. Apparently the functioning of the modern legal system was not of great interest to the villagers, as well.

**Conclusion**

National development planners and villagers in Fiji face a very real dilemma in their everyday lives, based on the need to accommodate opposing value systems in a practical way. There is no easy solution to this important dilemma, but an awareness that it exists, and must be dealt with, is a starting point in the alternative SCBA offered here. The possibility of ignoring the existence of this dilemma, by following the narrowly defined dictates of conventional SCBA, is explored in this analysis. The conclusion is that the activity of conventional SCBA, in the Fiji case, not only produces results of limited usefulness, but also raises important questions about the structural implications of its use.
NOTES TO CHAPTER VI


12. Ibid., p. 263.


20. Ibid., p. 193.

21. Ibid., p. 186.

22. Ibid., pp. 189-191.

23. During the 1980s a West German aid organization, the Hans Seidel Foundation (HSF), established the Center for Appropriate Technology
and Development (CATD) in Nadave as a training center for rural villagers. A main purpose of the CATD is to bridge the technological gap between the village and the modern world. This transition has typically taken several generations to accomplish in the developed countries; the CATD effort to condense this process into a several-month training period was admittedly fraught with considerable frustration on the part of the German instructors, and growing pains on the part of the villagers.

In 1981, when CATD was getting established, it was verbally agreed between the government and the HSF that, in exchange for the right to set up operations in Fiji, the CATD would provide training for operators of village RE equipment. This agreement relieved the Public Works Department of the need to provide such a training program during the RE project implementation and project maintenance phases.

As a consultant to CATD in 1984, I interviewed all of the CATD graduates who had returned to their villages in the Eastern division of Fiji. In this case study, it was determined that there was no overlap between the population of CATD graduates, and the population of village RE equipment operators. In other words, CATD had failed to honor its agreement with the government.

The unfortunate result of this agreement is that neither the government, nor the aid agency, provided the crucial input of training. This void in village-oriented training was also ignored by the TATA consultants. In a section in their report entitled "training requirements," the concern was limited to whether the FEA and the FWD had construction crews sufficient to implement an accelerated RE program. No mention was made of the villagers who were to deal with the RE equipment, once the construction crews had departed.
CHAPTER VII

CONCLUSION

Several decades ago the Rostowian model of capitalistic development was gospel. Third World planners followed the dictates of this model religiously. In doing so they acknowledged economics as the critical development science, with the satisfaction of economic rationality as the primary goal of development efforts.

Political science subsumed a minor role to that of economics within the social sciences. The role of the state became one of providing the infrastructure for releasing private efforts to improve individual well-being. As the protector of the interests of private capital, the state guaranteed the loans necessary to provide this infrastructure.

The bifurcation of economics and politics, and of the private and the public sectors, was made possible by a clean bifurcation of fact and value, and thus of means and ends, allowed in the empirical approach to scientific inquiry. As the dominant approach to inquiry in the mainstream social sciences, this bifurcation is frequently taken for granted, i.e., it is presupposed to the conventional development theory embraced by young and developing nations such as Fiji. In view of the paradigm shift underway in the realm of development theory, it is necessary to have a look at the meta-theory of SCBA, i.e., to probe further into the presuppositions that are logically anterior to the theoretical underpinnings of development economics, welfare economics, and project appraisal.
The basis for the organization of land, labor and capital in the concrete specifics of the Fiji case study is exactly opposite to that assumed in the technique, theory, and meta-theory of the conventional SCBA used by the Asian Development Bank consultants. In distinguishing between the social unit vs. the individual as the unit of analysis, an important contradiction between the practice and the theory of SCBA is exposed in this case study. Although this contradiction is not present in every small island, developing country context, careful attention to the cultural context of end-use priority and technology considerations is, nonetheless, crucial to ensuring a good fit between the theory and the reality of SCBA activities.

The newly independent nation-state of Fiji embarked on an ambitious development planning process, recommended by the international development agencies. Underlying this advice was a universalist posture, in which the historical trajectory of the West was assumed to be the trajectory for all who conscientiously participated in modernization efforts.

The curve of GNP data in the 1970s suggested that Fiji was, indeed, airborne in its efforts to emulate the "take off" of the rich nations. The curve of the GNP data for the 1980s suggests, however, that the prospect of a crash landing is within the realm of the possible. The buoyant economic growth of the first decade of independence was artificially supported by large injections of borrowed foreign capital for major infrastructure projects. By the end of the second development decade the debt-servicing burden was already claiming a significant portion of the national product, and intensive efforts were underway
to send ever-larger quantities of Fiji's natural resources abroad to keep the economy afloat.

Historically, participation by the Fijians in the national economy lagged far behind that of the other ethnic groups. An outcome of two military coups in 1987 has been a deliberate attempt to get Fijians to adopt the private enterprise ethic of modern capitalism. At the same time, the Fijian leaders insist that the traditional values underlying Fijian society must be preserved. Despite the fact that these traditional values have ensured the survival of Fijian society for two millennia, Fijian culture may yet prove to be just one more victim of the monoculture that participation in the global capitalist economy implies. In order to ensure the survival of traditional Fijian values and culture into the twenty-first century, acknowledgment of the existence of this contradiction must serve as the starting point in planning future development strategies for Fiji. In view of the desire to preserve the traditional, it is argued that a closer inspection of modern elements to be incorporated in this strategy is needed.

Electricity is typically taken for granted as an essential input in the modernization process, and as a catalyst of economic development. In view of the political economy of rural electrification projects in Fiji, this role of electricity in development can no longer be taken for granted.

Electricity is a powerful symbol of modernity. Politicians are easily tempted to ensure that their rural constituents have at least an electric light bulb in their home.

Electricity is also an essential input to the tourism industry, as well as to other private sector capital ventures that contribute
to economic growth in the national economy. The capital needed to enter these profit-seeking ventures is typically large, and few rural inhabitants can ever hope to participate other than taking the more menial and low-paying jobs these ventures provide. The major participants in the tourism industry in a small, developing country such as Fiji typically represent the interests of foreign, private capital, and to a lesser extent a certain enclave of domestic, private capital. People representing these interests exert pressure on politicians to ensure that the public sector is the guarantor of the investment capital needed to put in place the expensive infrastructure projects required by the private sector.

Further pressure is exerted on politicians by the international development banks. The majority of the voting power in these banks lies with the developed countries. Through their respective governments, private sector interests in these countries are able to influence developing country lending policies. These banks on-lend capital from developed country capital markets, as well as facilitate the entry of private sector capital from these countries into the developing country economies through their tendering practices. The banks also exert pressure on the governments of the borrowing countries to insulate the agencies implementing major infrastructure projects from the political process. Insulation from political interference helps to ensure that the implementing agencies service their foreign loans in a timely manner.

In view of all of these pressures on politicians in developing countries to invest heavily in expensive infrastructure projects, it is not surprising that by the second or third development decade
the value of the public debt often approaches the value of the gross national product. In order to facilitate the servicing of the public debt, the politicians are further encouraged by the banks to sell off (privatize) national assets, as well as export more and more of the nation's natural resources. In the course of managing their ailing economies, politicians are also faced with pressure from the banks to restructure various sectors of the economy, as well as implement policies for fiscal management that may negatively impact on the lives of their constituents. Because the need for further loans to keep the economy afloat is often great, politicians have little choice but to accept the conditionality of these loans.

Newly independent nations followed the advice of the development banks in their pursuit of economic growth, in the hopes of catching up with the developed countries. This advice not only produced disappointing economic results for many of these nations, but it also put them into a position vis-à-vis the banks whereby their national sovereignty was threatened.

In view of these overall patterns of "development," based on conventional wisdom, the question arises as to how did all of this happen, given that every major investment project must pass through the project appraisal step (technically referred to as Social Cost-Benefit Analysis) of the public policy process before funds can be allocated to the project.

In this research, the activity of SCBA was explored from many perspectives in the case of rural electrification policy in Fiji. From the narrow perspective as to how the technique works, significant problems were found in the methodology used and the data assumptions
made. From a broader perspective, what was left out in the course of using the technique advocated by the development bank has even greater implications for the success or failure of the project. Missing was an appraisal of who wanted the electricity project (if, in fact, they did), how they would manage a technology they had never experienced before, how they would pay the recurrent costs given that they were likely to get assistance in paying the initial capital costs, how equitably the project costs and benefits would be distributed, and so on? All of these questions are difficult to answer without detailed knowledge of the local context of the project. This aspect of project appraisal is especially problematic when external (bank) consultants are relied on to perform project analysis. Such reliance is not uncommon, as the use of a highly mathematized technique is typically a prerequisite to consideration of the project for funding by the bank, and young nations are chronically short of people familiar with such techniques. The consultant typically has no time (and perhaps no inclination) to explore the local context in detail, and therefore the temptation is great to ignore this context. When the users of the project hardware lack the motivation and the skills necessary to look after that hardware, the project all too often results in a rural landscape littered with rusting equipment (that probably has not been paid for).

In a still broader perspective, in which SCBA is viewed as an activity that involves representatives of the government and the development bank(s), there is the temptation on both sides to go through the formal exercise of conducting economic analysis, and despite uncertainty about its economic viability, carry on with the
project based on political considerations. In the short-term the politician may have gained in terms of having satisfied local and foreign expectations, but in the longer-term this spend now-pay later mentality cultivated in modern life may cause regrets.

The greatest regret, for those political leaders who deeply care about the welfare and the future of their constituencies (which is, in my opinion, the case in Fiji), is possibly the erosion of the sovereignty of the nation, and the self-respect of its people. Such erosion typically results from heightened dependency relations with the external world. In these terms, there is a pressing need to pay closer attention to wiser investment planning practices in general, and to the activity of project appraisal in specific.

National investments must be thought of more in terms of human beings than in terms of hardware, and in each project a better balance between the two must be sought. There is an urgent need to train more indigenous people in the mathematical skills necessary to be proficient project analysts (people who can think for themselves, and will not necessarily follow the dictates of the bankers). There is also the need to apply these mathematical skills to bottom-up planning activities with the same rigor that they have applied to top-down planning efforts. The first step in this aggregation process would be to record the goals and priorities, as well as the existing skill levels, at the lowest administrative level. These data would then be aggregated at each level further on up the administrative ladder, until national aggregates obtained in this matter could then be compared with statements in national planning documents as to what directions the nation as a whole wants to head in, and what resources
(especially human resources) it has to facilitate the achievement of these goals. It then becomes possible to identify the resource gaps, and make plans to fill them. If the need to implement specific rural electrification projects is still apparent, once this cross-checking exercise has been performed, the cost of filling gaps in terms of the human skills required for the project's success can then be calculated. After these calculations have been done, the types of calculations found in conventional project appraisal guides can then begin. Each accounting convention used must reflect the situation in the relevant nation, and each data assumption must be reality-led.

Project appraisal based on the broader perspectives outlined above has the potential to assist young and developing nations in reaching the goals set at the time of independence--goals of achieving, as a nation and as individuals that constitute that nation, the improvement of human welfare and the control of one's destiny.

The outcome of this alternative SCBA of RE policy in Fiji suggests a different overall view of benefits and costs based on comprehensive project appraisal. On the one hand, actual benefits realized at both the national and the village levels have been far less than predicted in development plans or assumed in conventional project appraisal efforts. On the other hand, costs at both levels have been larger than predicted or assumed. Important costs have either been omitted altogether, omitted from the computer model itself, or underestimated, particularly in terms of recurrent costs and subsidy levels to be borne by the government. Should the FEA be privatized, calculation of the costs of land access would be higher in financial and economic terms. In my view, political costs would be even higher yet. While
it is often shown in conventional SCBA that benefits outweigh costs of RE programs, a broader perspective of SCBA suggests that costs may outweigh benefits in many cases, once benefits are revised downwards, and costs are revised upwards.

The final calculus of costs and benefits rests on a detailed analysis of the local context of RE programs and projects. It is argued that, for the structural reasons outlined above, the usefulness of SCBA, as performed by representatives of the international and regional development banks, is very limited. In assessing the interests of the bankers, as well as the inherent contradiction in accommodating both traditional and modern values in a single development strategy, local project analysts and policy makers must come to grips with the limitations of conventional SCBA. In doing so, it is argued that they, rather than the bankers, must take center stage, redefining both roles in the process.
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