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TECHNICAL AND ADMINISTRATIVE UNIT (TAU)
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*REGIONAL
CAPACITY-BUILDING
PROGRAM FOR
ENERGY SURVEYS
AND
POLICY ANALYSIS
PART I MAIN REPORT*

November 1991

SADCC ENERGY SECTOR

**REGIONAL CAPACITY-BUILDING PROGRAM
FOR ENERGY SURVEYS AND POLICY ANALYSIS**

*Results of Training Program Design Workshop,
Arusha, Tanzania, April 21-26, 1991*

in collaboration with

ESMAP Operations Division
Industry and Energy Department
The World Bank
Washington, D.C.
U.S.A

Southern African Development
Coordination Conference
Sector Technical and Administrative Unit
Luanda, Angola

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ACRONYMS AND ABBREVIATIONS

ACBI	African Capacity Building Initiative
AHSCP	Africa Household Survey Capability Program of the United Nations
CSO	Central Statistical Organization
DNRSE	Department of New and Renewable Sources of Energy, Ministry of Energy and Petroleum (Angola)
DOE	Department of Energy, Ministry of Power, Transport and Communication (Zambia)
DOERD	Department of Energy Resources Development, Ministry of Energy and Water Resources (Zimbabwe)
ECA	United Nations Economic Commission for Africa
EDI	Economic Development Institute of the World Bank
EPU	Energy Planning Unit, Department of Economic Planning and Development (Malawi)
ESAMI	Eastern and Southern Africa Management Institute
ESMAP	Joint UNDP/World Bank Energy Sector Management Assistance Program
MIE	Ministry of Industry and Energy (Mozambique)
MME	Ministry of Mines and Energy (Namibia)
MMRWA	Ministry of Mineral Resources and Water Affairs (Botswana)
MNE	Ministry of Natural Resources and Energy (Swaziland)
MWEM	Ministry of Water, Energy, and Mining (Lesotho) Ministry of Water, Energy, and Minerals (Tanzania)
SADCC TAU	Southern African Development Coordination Conference, Energy Sector Technical and Administrative Unit
SDA	Social Dimensions of Adjustment Program of the World Bank
STPA	Statistical Training Program for Africa

PREFACE

This report outlines a regional energy training program for professionals from energy agencies and national statistical organizations in SADCC member countries. The training program presented has been developed from the conclusions and recommendations of a SADCC Regional Training Program Design Workshop held in Arusha, Tanzania on April 21-25, 1991.

The purpose of the Workshop was to perform a comprehensive assessment of training needs and priorities based on experiences with energy surveys in the SADCC region, and to outline the main elements of a regional training program. The Workshop utilized the experiences, expertise, and perspectives of invited professionals to review key issues and the competency requirements for the effective application of methods and techniques for energy survey and policy analyses. Workshop deliberations included discussion of the operational and institutional aspects of survey and policy analysis work.

The contributions made by each of the SADCC country delegates who attended the Workshop are gratefully acknowledged. Special thanks goes to the Government of the United Republic of Tanzania for hosting the Workshop.

Credits

This activity was executed by an ESMAP team comprised of Mr. Jeffery Dowd (Task Manager, ESMAP Operations Division, World Bank), Dr. Jan Eklof (National Statistics Planning Consultant, Statistics Sweden) and Dr. Ven Mvano (Senior Management Consultant, Eastern and Southern Africa Management Training Institute, ESAMI). Ms. Yolanda Ferrao of SADCC TAU provided secretarial support at the Arusha-Workshop. This report was prepared by Mr. Dowd with contributions from Messrs. Eklof and Mvano, and Mr. Amarquaye Armar (Senior Energy Planner, ESMAP Operations Division, World Bank). The report was edited by Mr. Alan Bowser. Ms. Nyra Guice was responsible for word processing.

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Part II: Technical Supplement

(Technical Supplement Appears in a Separate Volume)

- I. Report on the SADCC Regional Training Program Design Workshop, held in Arusha, Tanzania, April 21-25, 1991**
- II. The Design of In-Service Professional Training Activities**
- III. Detailed Description of Subject Modules and Course Content**

**SADCC REGIONAL TRAINING PROGRAM DESIGN WORKSHOP
ARUSHA, TANZANIA, APRIL 21-25, 1991**

The Workshop was attended by 14 professionals representing the SADCC countries, 3 SADCC TAU officials, 4 Observers and 3 World Bank staff and Consultants. SADCC country delegates included a mix of Energy Planners and Statisticians representing energy departments, energy planning offices, and central statistical organizations.

COUNTRY DELEGATES

Mr. Joao S. Agostinho, Agronomist
DNRSE
Ministry of Energy and Petroleum
Angola

Ms. Luzia Conceicao, Economist
DNRSE
Ministry of Energy & Petroleum
Angola

Mr. Motlamedi M. Shatera, Statistician
Ministry of Mineral Resources & Water Affairs
Botswana

Mrs. Majoel M. Molapo, Statistician
Energy Dept., Statistics Section,
Ministry of Water, Energy & Mining
Lesotho

Ms. Motselisi S. Lebesa, Economic Planner
Energy Dept., Ministry of Water, Energy & Mining
Lesotho

Mr. Arnold M. Juma, Senior Energy Economist
Department of Economic Planning & Development
Malawi

Mr. Osvaldo Sousa, Forest Officer
Direccao Nacional De Florestas E. Tauna Bravia
(General Directorate of Forestry)
Mozambique

Ms. Precious Myeni, Senior Assistant Planning Officer
Ministry of Natural Resources and Energy
Swaziland

Mr. Natanael K. Mwingira, Statistician
Central Bureau of Statistics
Tanzania

Mr. Bashiri J. Mrindoko, Senior Executive Engineer
Ministry of Water, Energy and Minerals
Tanzania

Mr. Silvester H. Hibajene, Chief Engineer
Dept of Energy, Ministry of Power,
Transport and Communications
Zambia

Mrs. Peggie L. Chiwele, Senior Energy Planner
Dept. of Energy, Ministry of Power, Transport and
Communications
Zambia

Mr. Washington Mapeta, Senior Statistician
Central Statistical Office
Zimbabwe

Mr. Kenneth Mukozho, Senior Administrative Officer
DOERD, Ministry of Energy, Water Resources
and Development
Zimbabwe

OBSERVERS

SADCC ENERGY SECTOR TAU

Mr. Robert J. Pember, ILO/ECA Regional Advisor
African Household Survey Capability Program
Economic Commission for Africa
Ethiopia

Mr. Antonio J. Pinto, Economist,
Economics Department,
SADCC Energy Sector TAU
Angola

Ms. Jill A. Boberg, Research Associate
Stockholm Environmental Institute
Sweden

Mr. Bariki K. Kaale, Biomass Fuels Adviser
SADCC Energy Sector TAU
Angola

Mr. Wilfred D. Kipondya, Assistant Executive Engineer
Ministry of Water, Energy and Minerals
Tanzania

Mrs. Sandra Dos Santos, Woodfuel Specialist
SADCC Energy Sector TAU
Angola

Mr. Johannes T. Chigwada, Senior Research Officer
Ministry of Energy and Water Resources and Development
Zimbabwe

CONSULTANTS

WORLD BANK ESMAP

Dr. Ven Mvano, Senior Management Consultant
Eastern & Southern African Management Institute
Tanzania

Mr. Jeffery Dowd, Energy Specialist
Industry and Energy Department, World Bank
U.S.A.

Dr. Jan Eklof, National Statistics Planning Consultant
Statistics Sweden
Sweden

EXECUTIVE SUMMARY

1. This report presents a regional training program for enhancing the energy project management, survey, and analytical capability of professionals in the SADCC region. The training program has been developed from the conclusions and recommendations of a SADCC Regional Training Program Design Workshop held in Arusha, Tanzania in April 1991. The Workshop utilized the experiences, expertise, and perspectives of energy planners, statisticians, and policy analysts from SADCC member countries to review key issues and competency requirements for the effective application of data gathering and policy analyses to the energy sector, and to identify the functional needs (tools, methodologies, skills, concepts, etc.). The proposed training would directly assist SADCC TAU in meeting its capacity-building objectives in the region by increasing the critical mass of professionals in member countries capable of carrying out energy data collection and analysis tasks required for developing and implementing national energy strategy.
2. Building national capability to formulate, implement, and monitor energy sector strategy is vital if policies and programs are to be successful. Currently available data and policy inputs for energy strategy work are inadequate in most SADCC countries. The collection and analysis of energy information are critical areas where national capabilities have to be improved. To effectively produce and use energy information for strategic planning purposes, professional competencies (knowledge, skills, attitudes, and working practices) in the managerial, technical, and analytical areas are necessary.
3. There is a consensus in the SADCC region that donor agencies should place a greater emphasis on technical assistance programs that aim explicitly to build the in-house capacity of government agencies to perform energy strategy work. The training program outlined in this report is a first step to address the needs of the region.

Policy Framework

4. The policy framework for the training program is the SADCC Five Year Implementation Strategy for Woodfuels. Woodfuel is the primary source of energy for approximately 80% of the population in the SADCC countries. Households and small-scale enterprises critically depend on woodfuel supply whose inefficient use and subsequent declining availability contributes to increasing social, economic, and environmental hardships. With existing foreign exchange constraints, the provision of commercial fuels to the residential and small-scale enterprise sectors often is constrained by the high international price of oil. Faced with this dual energy crisis, national energy departments and planning offices have placed greater emphasis on effectively performing the tasks of policy planning and strategy implementation in the key wood-consuming sectors.
5. In this context, Governments have been increasingly faced with making strategic decisions which necessitate addressing issues in fuel pricing and taxation, energy demand management (energy end-use efficiency, conservation, and fuel substitution), and investment in energy supply and market distribution systems. The training program emphasizes a strategic planning perspective. This orientation encourages the formulation of energy policy to follow, first, from an evaluation of key sectoral issues at the *policy level*; second, comprehensive policy

reviews and appraisals at the *strategic level*; and, third, the preparation of detailed project strategies and plans, and monitoring strategy implementation at the *operational level*.

Program Objectives

6. A principal goal of the training program is to assist the SADCC TAU in meeting its capacity-building objectives for SADCC member countries to formulate and implement policies and strategies for managing the demand for woodfuels, especially in the broader context of national energy policies. The training program *aims to strengthen the project management, survey, data processing, and policy analysis capabilities of energy professionals in SADCC member countries*.

7. The training program has been designed to address six short-term objectives, consistent with the SADCC TAU's regional capacity-building objectives. These are to:

- 1) Increase the capabilities in energy survey planning, design, management and in policy analysis.
- 2) Enhance the exchange of knowledge and experiences on the best practices in survey development, field execution, and analytical techniques for policy work.
- 3) Sensitize national policy-makers to the kinds of energy data and analytical tools needed to develop demand management strategy for the key wood-consuming sectors.
- 4) Strengthen the planning, implementation, and program evaluation capability of the Central Coordinating Body (SADCC TAU) that would be charged with administering the training program beyond the initial three-year implementation period.
- 5) Reinforce the capacity of participating regional training centers to deliver customized SADCC courses and to produce training materials that match the needs of the region.
- 6) Enhance the cooperative links between regional energy agencies, central statistical organizations, universities and other institutions involved in producing and using energy data for planning and implementing energy policies.

Recommended Institutional Framework

8. The institutional arrangements in support of the training program aim: (i) to maximize the comparative advantages of the participating institutions and (ii) to ensure an African presence in and ownership of program planning and implementation. The training

program is to be implemented by the SADCC TAU with World Bank assistance. The ECA-sponsored Statistical Training Program for Africa (STPA) and the Eastern and Southern Africa Management Institute (ESAMI) would also collaborate. Advisory assistance in national statistical planning and institutional collaboration in statistics would be provided by a suitable National Statistics Development Institute.

Program Components and Training Activities

9. The training program encompasses the following components: (i) in-service training of professionals; (ii) management assistance to the Central Coordinating Body and to participating regional training centers; and (iii) monitoring and evaluation of program implementation.

10. These three components are complementary. The *professional training component* is designed to provide competence improvement in managerial, technical and analytical areas. The remaining two components, *assistance to the Central Coordinating Body and regional training centers*, and *program monitoring and evaluation* are necessary to ensure that the training process would be efficiently implemented and sustained over the long term.

Target Audience

11. The target audience for the training program is comprised of professionals from different occupational backgrounds, such as energy planners, statisticians, policy analysts, and computer specialists. These professionals would be recruited from energy agencies, central statistical organizations, and relevant ministries, and invited to training at regional centers. Technicians, such as enumerators, field supervisors, data entry operators, would receive on-the-job training at the national level through instruction from personnel trained at the regional level.

12. In addition, senior executives from energy agencies and central statistical organizations, e.g., Directors and their deputies, and department heads, would be invited to participate in a Senior Policy Seminar on "Energy Strategy Issues for Household and Small-Enterprise Sectors" to familiarize decision-makers with the current energy issues in the major wood-consuming sectors.

13. The recommended training activities are listed below:

- Module 1. Managing and Planning National Energy Projects
 - I.1 Principles of Project Management
 - I.2 Planning and Managing Energy Survey Projects

- Module 2. Survey and Policy Analysis Applications
 - Block 1: Survey Design and Field Operations
 - I.1 Sample survey design
 - I.2 Questionnaire design
 - I.3 Enumeration (interview) techniques

 - Block 2: Data Preparation and Processing
 - II.1 Data Preparation (editing, coding, data entry, validation)
 - II.2 Design of energy survey processing system
 - II.3 Development of application program modules

 - Block 3: Analysis and Presentation of Results
 - III.1 Analytical techniques for energy strategy studies
 - III.2 Reporting survey and analysis results

- Module 3. Training of Trainers

14. Training activities would employ a combination of in-service training workshops, seminars, classroom lectures, short field tours, and ex-post regional dissemination seminars. Country-level case studies and case discussion exercises would be the basis for the learning experiences. Where there is a relevant linkage to an ongoing national energy strategy study in a member country, that country may be considered for a case study. Where appropriate, the various training activities would be integrated in time and place with the on-the-ground execution of a live strategy study in a case study country.

15. The training activities are designed to impart knowledge and skills in managerial, supervisory, technical and analytical areas, as well as to expose professionals to woodfuel policy issues and the utility of having appropriate information and policy inputs for policy decision-making. Training activities would emphasize the applied and policy dimensions of survey and strategy work.

16. The training program is designed to encourage integrated efforts and collaboration between national institutions. To this end, at least two teams of three professionals from each participating country should attend, preferably staff representing the energy department, the energy planning office, and the central statistical organization. In addition, representatives from other agencies who might share some of the responsibility for implementing energy

policies, such as the Forest Commission and the Ministry of Agriculture would be considered for inclusion, depending on the institutional arrangements in each individual member country.

Program Implementation

17. The training program would be implemented over a three-year period. Over this period, two rounds of training activities would be conducted for up to 30 professionals per round. Each round of training would involve 20 weeks of activities spread out over 30-35 calendar weeks. Implementation of the training program would be carried out in three stages. The first stage involves building the foundation for the training program, preparation of training materials/case studies, and pilot testing the "management" training module (Module 1). The second stage is comprised of the executing the full range of training activities for the first round, and evaluating the program implementation. The final stage involves preparation of the second round of training activities and program evaluation.

18. The estimated cost of the regional capacity-building program is US\$ 2.5 million over three years. This is equivalent to an investment for national capability improvement of less than US\$ 40,000 per trained professional, plus investment to ensure that management of the regional training program can be self-sustaining over the long term.

Expected Outputs

19. The training program is oriented towards influencing policy-making at the national level. It is expected to contribute to the design of a more effective energy strategy for households and small-scale enterprises by enabling professionals in appropriate national departments/ organizations to acquire needed competencies. In addition, the training is expected to result in (i) enhanced capabilities of national energy agencies with responsibilities for woodfuel implementation strategy; (ii) improved capacity of national statistical services to produce energy information for policy work; and (iii) improved inter-agency collaborative mechanisms.

20. Over three years, up to 60 professionals from energy departments, energy planning offices and central statistical organizations would be trained, 6 from each SADCC member country. Project Leaders/Managers from energy and statistical agencies would enhance their existing management capabilities and acquire new competencies in survey project planning, field operations management, project evaluation, and project proposal and report writing of energy strategies and plans. Technical Specialists from the region would be able to design good quality questionnaires, realistic household survey samples, relevant tabulation plans, field manuals, appropriate data processing application programs, and produce useful data analysis and reporting outputs.

21. Senior government officials would gain greater awareness about the energy data and policy analyses needed to attain energy demand management policy objectives. Senior officials and line-managers from the region would develop an increased understanding of the necessary skills and resources for energy policy analysis and planning at the national level, including

essential national energy information infrastructure and inter-agency collaboration mechanisms for effective energy information production.

22. At the regional level, there would be three significant outputs. First, over the three-year period, two rounds of the series of regional training activities would be conducted, each comprised of a total of 20 training weeks.

23. Second, the training program would strengthen the administrative and coordinating function of the SADCC TAU. Regional training infrastructure would be reinforced to ensure that the participating training centers develop appropriate materials and teaching methods to service the needs of the SADCC region.

24. Finally, the training program would lead to the development of a number of policy-related documents, including a SADCC Regional Handbook on Energy Survey and Policy Analyses for the Woodfuels Sector, methodological documents, such as subject-specific policy analysis plans, and technical guideline papers, and a set of guidelines for establishing cooperative links which would provide a framework for replicating energy surveys through routine collaboration between the energy departments, energy planning offices, and central statistical organizations in the respective SADCC countries.

I. Introduction

1.1 This report presents a recommended regional training program for enhancing the project management, energy survey, and analytical capabilities of professionals in the Southern African region. The training would assist the Southern African Development Coordination Conference Energy Sector Technical and Administrative Unit (SADCC TAU) in strengthening the in-house capacity and institutional capabilities of government agencies to perform energy strategy work.

1.2 SADCC energy training issues were first identified during discussions between representatives of Joint UNDP/World Bank Energy sector Management Assistance Programme (ESMAP) and the SADCC TAU in Maputo, Mozambique in May, 1988. As a result of the deliberations at a one-day Seminar on "Planning and Policy Instruments for Energy Management" which was held as part of the May 1988 Conference of SADCC Energy Ministers, there emerged a consensus that a special effort had to be made by the SADCC TAU to assist member countries in developing their capacity for energy strategy work. To carry out this assistance, the conference recommended that SADCC TAU collaborate with ESMAP, which had already supported energy strategy programs in SADCC member countries.

1.3 More recently, the need for training was emphasized by senior energy officials and planners from the Eastern and Southern African region, who had participated in a training needs assessment in Livingstone, Zambia in February, 1990 ^{1/}. As a follow-up of the Livingstone Workshop, it was recommended that a pilot training activity on the subject "Design and Execution of Surveys for Energy Demand Assessments" be initiated as a SADCC regional activity. The pilot activity would place special emphasis on the SADCC Five Year Implementation Strategy for Woodfuels ^{2/}.

1.4 The SADCC energy training program has been developed from the conclusions and recommendations of a "SADCC Training Program Design Workshop" held in Arusha, Tanzania in April, 1991. The Workshop utilized the experiences, expertise and perspectives of energy planners, statisticians and policy analysts from SADCC member countries to review key issues and competency requirements for the effective application of data gathering and policy analyses to the energy sector, and to identify the functional needs (tools, methodologies, skills, concepts, etc). The results of the Workshop have been used to prepare this comprehensive regional training program that explicitly addresses the needs of the region.

^{1/} World Bank, Managing the Energy Transition in Eastern and Southern African Countries, Results of Executive Planning Workshop on Energy Training Needs, Livingstone, Zambia, October 1990.

^{2/} SADCC, "Five Year Implementation Strategy for Woodfuels", in Proceedings of a Seminar on Woodfuel in the SADCC Region, Arusha, Tanzania, September 25-28, 1989, Annex 2B.

1.5 The training program would directly assist SADCC TAU in meeting its capacity-building objectives in the region by increasing the critical mass of professionals in member countries capable of carrying out energy data gathering and analysis tasks required for developing and implementing national energy strategy. The target subsector where attention would be focused are the major wood-consuming sectors, such as rural and urban households, home-based enterprises, small-scale commercial enterprises, and institutional consumers (e.g., schools, hospitals, etc). However, a special effort would be made to ensure that data collection and policy analysis for these subsectors are conducted within the broader context of national energy programs, and with due consideration for national macroeconomic settings.

1.6 The immediate objective of the training program is to increase the essential resources (manpower capability, information infrastructure) required for effectively developing and implementing national energy strategy. An additional aim is to establish a regional training program that could be implemented independently by regional entities (e.g., SADCC TAU) well beyond the proposed three-year implementation cycle. The principal longer-term goals are: (a) the progressive transfer of greater responsibility for management of energy strategy activities to national professionals from SADCC member countries; (b) improved effectiveness in which national strategy studies are conducted; (c) reduced dependence on foreign expertise; and finally, (d) establishing an institutional basis for collaboration between energy agencies and central statistical organizations, so that each can contribute according to its comparative advantage.

1.7 The training has a strategic planning orientation, whereby the training activities at all levels (i.e., technical, methodological, operational, managerial, and policymaking) will be based on an integrated systems approach and will be focused towards the resolution of key energy sector issues and problems.

1.8 The proposed training program is to be implemented over a three-year period, and encompasses three components: (a) in-service training of professionals, (b) reinforcing the managerial/planning capabilities of the SADCC TAU in its role as central coordinating body for the training program, including assistance to develop the instructor capability of participating regional training centers, and (c) monitoring and evaluation of program implementation.

1.9 The first component is in-service training of professionals. Up to 60 professionals from energy and statistical agencies would be trained. Through the proposed training program, middle-level professionals, such as Energy Planners, Statisticians, Policy Analysts, and Computer Specialists from energy ministries/departments and from central statistical organizations would be invited to regional training. On the other hand, technicians, such as Enumerators, Field Supervisors, Data Entry Operators, would receive their training at the national level through instruction from the professionals who received the regional training. As part of training program's management and coordination function, Senior Executives, such as Directors and their Deputies, and Department Heads, would be invited to attend familiarization seminars on energy strategy issues for the households and small-enterprise sectors. Direct involvement of senior government officials at the

start of the training program would help in establishing an enabling environment for training transfer of acquired professional skills to the on-the-job situation.

1.10 Different middle-level professionals would receive different subject training depending on their functional specialties. Participants would receive training at designated regional centers in subjects such as (a) planning and managing energy projects (with emphasis on energy survey projects); (b) survey design and field operations (sample design, questionnaire design, interview techniques); (c) data preparation and processing; and (d) analytical techniques for policy analysis.

1.11 Training would be delivered through a series of specialized modules, each comprised of a series of events. Training events shall emphasize the applied and policy dimensions of survey and strategy work. Towards this end, the following would receive special emphasis: (a) concepts, applications and practical problems, rather than theory or derivations; (b) exercises drawn from real-life situations, utilizing actual regional projects; (c) active group involvement in discussions and exercises of practical issues; (d) diagnosis of problem situations and problem-solving; (e) team-building; and (f) working-level linkages between those agencies that specialize in survey and statistical analyses and those that require data for policy and strategy work.

1.12 The second component involves reinforcing the management capability of the SADCC TAU (in the context of the training program), and the instructor capacity of the participating training centers to ensure the continuity of the training program beyond the three-year gestation period. In the final component, the overall performance of the training program would be continuously monitored and evaluated. Monitoring and evaluation is incorporated as an explicit component of the training program design, and would be initiated from the start.

1.13 There would be four principal outputs of this activity. The first product would be improvement in the competence of energy professionals and statisticians in the region with regard to energy planning, project management, survey execution and policy analysis. Key aspects of the professional training involve informing participants about what kind of data is needed for energy strategy work, for what specific purposes, and how to collect, analyze and present data and findings. Second, senior government officials would be encouraged to participate in familiarization seminars to enhance their awareness of energy policy issues in the target subsectors, and the policy and data inputs required for effectively addressing issues. Third, at the end of the three-year program experience, some important ground would have been broken towards establishing in each SADCC country an institutionalized basis for collaboration in the production and utilization of energy information. Finally, the progressive involvement of regional organizations and institutions in program implementation, such as SADCC TAU and African training centers is expected to result in regional institutions that would be capable of managing future program planning and implementation.

II. Background

2.1 Woodfuel is the primary source of energy for about 80% of the population in the SADCC countries. Households and small-scale enterprises critically depend on woodfuel supply whose inefficient use and declining availability contributes to increasing social and economic hardships. In light of prevailing foreign exchange constraints, the supply of commercial fuels to the residential and small-scale enterprise sectors is often constrained by the high international price of oil.

2.2 Faced with this dual energy crisis, national energy departments and planning offices have placed greater emphasis on more effectively performing the tasks of policy planning and strategy implementation in the key wood-consuming sectors. Governments have been increasingly faced with making strategic decisions about issues of fuel pricing and taxation, energy demand management (energy end-use efficiency, conservation, and fuel substitution), and investment in energy supply and market distribution systems.

2.3 In this context, the production, analysis, and use of energy sector data is an essential precondition for identifying problems, and designing and implementing sound policies, strategies, and projects. National and regional energy surveys help to answer important questions about (i) fuel production, consumption, distribution and marketing problems; (ii) the economic and social impact of policy choices on consumers; (iii) the national economic impact; (iv) what measures to apply to improve production, distribution, marketing and end-use efficiency; (v) fuel substitution and conservation possibilities; (vi) pricing mechanisms; and (vii) the relationship between energy demand and supply.^{3/} Policy analysis helps to (i) clarify options for improving the efficiency of energy production, distribution, marketing and end-use; (ii) determine the potential costs and benefits of various options; and (iii) evaluate key policy trade-offs.

2.4 Building national capability to formulate, implement, and monitor sector strategy is vital if policies and programs are to be successful. The collection and analysis of energy information are critical areas where national capabilities have to be improved. The following components are needed to effectively perform an energy demand management strategy study:

^{3/} For example, in the residential energy sub-sector, the data typically required for economic, social and market analysis range from consumption statistics; marketing/distribution data; socioeconomic data, including income/expenditure data and demographic indicators; production and supply data; environmental statistics; attitudinal statistics; and economic and financial data. These data cut across the woodfuel, power, coal, gas and oil sectors. To improve energy end-use efficiency in the residential sector, the data on the quantities of woodfuel consumed by households, their cooking practices and information on consumer attitudes towards conservation is needed to propose a conservation program. Fuel switching also draws on data collected on fuel choices, fuel/appliance prices and availabilities, measures of security of supply, consumer preferences and other data that quantify the main determinants of fuel substitution, both at the end-user and the market system level. Analyzing energy conservation and fuel switching options will require socioeconomic data, such as household income and income breakdown by source, and household expenditures data on the distribution of household sizes. The subsequent policy review and energy strategy developed would necessarily draw on quantitative information collected from energy surveys, as well as qualitative information from other sources.

- (a) *organized energy information* acquired through demand, supply, market chain, and monitoring surveys from sources such as government institutions, public utilities, liquid fuel suppliers, consumers, and market intermediaries;^{4/}
- (b) *the application of appropriate policy analysis tools* for demand forecasting; end-use structure studies; model-building; analyses of demand-supply imbalances, pricing and market distribution; the financial and economic aspects of energy policies, investment options; and the social impacts on consumers;
- (c) *a national capability* to plan, manage, and execute energy surveys and to perform policy analyses; and
- (d) *a collaborative mechanism* through which relevant ministries and agencies, such as an energy department, planning office, and a central statistical organization can work together, utilizing each other's comparative advantage.

2.5 The main thrust of the SADCC woodfuels strategy with respect to capacity-building is to provide support at the regional level to on-going national woodfuel programs, emphasizing the following priorities:

- (a) building the in-house capacity of energy sector agencies in each of the SADCC member countries to analyze policy options, and to plan, implement, monitor, and evaluate programs and projects on the woodfuel subsector; and
- (b) developing the expertise of local professionals in the region on wood energy subjects through specialized in-service training programs.

2.6 There is a consensus in the region that donor agencies should place a greater emphasis on technical assistance programs that aim explicitly to build the in-house capacity of government agencies to perform energy strategy work. The training program outlined in this report is a first step to address the needs of the region^{5/}.

^{4/} In the context of this activity, "surveys" are defined as formal surveys and other data gathering tasks, such as informal interviewing. The main types of surveys covered in the training are (i) baseline energy demand surveys; (ii) surveys to investigate the structure and performance of existing networks for marketing and distributing woodfuels to key consumer groups; (iii) surveys to determine consumer attitudes, preferences, and habits; and (iv) surveys to track and/or monitor patterns and trends in energy use (for example, multiple-round surveys to capture seasonal differences in woodfuel use). Detailed biomass assessments (area determination and ground truthing) and comprehensive Management Information Systems (MIS) are data gathering tasks that fall outside of the scope of this training program. Rapid Rural Appraisal survey methods are not covered in the training program but can be introduced in the future.

^{5/} As recommended at the Livingstone workshop, this training program would emphasize energy demand management for the residential, institutional and informal enterprise sectors.

III. Policy Framework and Program Objectives

Policy Framework

3.3.1 The SADCC TAU, following extensive consultations with energy agencies in all SADCC member countries, has decided to give priority to developing more comprehensive national strategies on woodfuel demand management.

3.2 In 1989, the SADCC Energy Sector TAU formulated a five-year implementation strategy for woodfuels which addressed both supply development and demand management aspects. The implementation strategy recognizes that the main problems in the woodfuel subsector derive from the growing imbalances in several parts of the region between the level of woodfuel consumption by households and informal enterprises in rural and urban areas, and the sustainable supply from natural woodlands, especially in the vicinity of rapidly growing urban centers. Although there is growing evidence to show that, on the supply side, the principal factor in forest degradation in the region is the clearing of land for agricultural expansion rather than for the supply of woodfuel, the need to systematically curtail demand for woodfuels (i.e., improving efficiency of woodfuel use and encouraging fuel-switching) has nevertheless been recognized as being one of the more cost-effective options for the majority of countries in the region.

3.3 The regional training program emphasizes a strategic planning perspective. This orientation encourages the formulation of energy policy to follow, first, from an evaluation of key sectoral issues at the *policy level*; second, comprehensive policy reviews and appraisals at the *strategic level*; and, third, the preparation of detailed project strategies and plans, and monitoring strategy implementation at the *operational level*.

3.4 The strategic planning orientation is a crucial aspect of the training program, and is consistent with the present and future energy sector planning needs of SADCC countries. Each of the SADCC member countries already has embarked on new initiatives to integrate woodfuel demand management strategies into the national energy programs (see Box 3.1).

3.5 Although there are activities underway in each SADCC member country, due to the lack of local expertise, most of the governments have had to rely extensively on international consultants to perform the tasks required for the energy strategy studies. SADCC officials have recognized this situation and have endorsed technical assistance programs aimed at training local professionals to effectively undertake energy strategy work.

BOX 3.1 SADCC NATIONAL ENERGY STRATEGY STUDIES

- Examples of energy strategy studies completed or in process in SADCC member countries are listed below:
- 1) In 1987, the DNRSE in Angola commissioned a field research study of woodfuel consumption, production and distribution in four coastal provinces and three interior provinces for the purpose of assessing the woodfuel problem in both rural and urban areas of the country.
 - 2) In 1990, the Energy Unit of the MMRWA in Botswana completed an urban energy strategy study aimed at providing sufficient affordable energy at least cost and in an environmentally sustainable manner.
 - 3) In 1989, the Lesotho MWEM carried out an urban household energy consumption survey as input to its Energy Masterplan and the Lesotho Energy Information System (LEIS).
 - 4) The MME in Namibia is embarking on an energy sector assessment of issues in power, petroleum, and the household energy sectors. A survey of energy use in the rural and household sectors in Northern Namibia is planned for late 1991.
 - 5) The Malawi EPU is working to develop a planning framework to increase the efficiency of fuel use and to promote substitution from woodfuels in urban centers. To support this planning initiative, the EPU has proposed an energy survey to collect energy use data at the household-level and to examine urban fuel marketing systems.
 - 6) In 1988, the MIE in Mozambique, undertook a survey of energy consumption to assess interfuel substitution possibilities and energy policies in urban areas.
 - 7) The MNE in Swaziland, has implemented a quantitative survey of energy consumption in different regions of the country to generate energy information inputs to assist in developing a strategy for alternative fuels.
 - 8) In 1990, the MWEM in Tanzania carried out demand, woodfuel transportation, and fuel distribution/market surveys in three urban areas as parts of its efforts to improve policies, strategies, and programs in the energy sector.
 - 9) The DOE in Zambia has undertaken a comprehensive urban energy strategy study. In addition to collecting energy information from the households and woodfuel sectors, data was collected from electric utilities, liquid fuels sector, and forestry sector institutions. From the analyses of the quantitative and qualitative data collected, an urban energy strategy was established, a set of policy options were outlined, and a detailed action plan was drawn up.
 - 10) The Government of Zimbabwe has initiated an energy strategy study for low-income urban households in the Manicaland province, with an emphasis on fuel-switching and fuel conservation. The data collected from the energy demand and market surveys, and from the power, oil, forestry sector, and housing institutions helped establish a quantitative base upon which policy decisions could be taken.

Program Objectives

3.6 The goal of the regional training program is to support the SADCC TAU in meeting its objective of assisting member countries in formulating and implementing policies and strategies for managing the demand for woodfuels, especially in the broader context of national energy policies. This goal is to be achieved by building the project management, energy survey, data processing, and policy analysis capability of professionals in SADCC member countries. An additional aim is to establish a regional training program that could be planned and executed independently by regional institutions (e.g., SADCC TAU) well beyond the initial three-year implementation cycle.

3.7 The following are the main short-term program objectives:

- 1) Increase the capabilities of professionals from different disciplines (energy planners, statisticians, policy analysts, computer specialists) in project management, energy survey planning, design, field management, and policy analysis.
- 2) Sensitize national policymakers to energy issues in the key wood-consuming sectors, and the kinds of energy data and analytical tools needed to develop demand management strategies for the key wood-consuming sectors.
- 3) Enhance the cooperative links between energy agencies, central statistical organizations, universities, and other institutions involved in producing and using energy data for planning and implementing energy policies.
- 4) Strengthen the planning, implementation, and program evaluation capability of the Central Coordinating Body charged with administering the training program.
- 5) Reinforce the capacity of participating regional training centers to deliver customized training courses and to produce specialized materials that match the needs of the region.
- 6) Promote the exchange of knowledge and experiences on the best practices in survey development, field execution, and analytical techniques for policy work.

3.8 The training program also embraces several longer-term objectives.

- 1) Strengthen national energy information services, such as central statistical organizations, departmental statistical units, and departmental modeling units.
- 2) Develop a cadre of regional and national experts capable of carrying out energy surveys, performing systematic analysis of energy policy options, and training and advising professional colleagues, with minimal external consultative assistance.

- 3) Improve training infrastructure and enhance the functioning of the Central Coordination Body charged with overseeing the program.
- 4) Strengthen the degree and effectiveness of collaboration between energy agencies, national statistical services and other relevant national agencies.
- 5) Enhance national capacity to produce timely and reliable energy information, and to apply best practice energy survey and analysis methods.
- 6) Establish a program of technical advisory services that may include technical support, testing and adapting survey methodologies to meet the region's requirements, and research into appropriate analytical techniques for policy work.

IV. Program Design

Essential Features of the Regional Training Program

4.1 To achieve the capacity-building objectives of the SADCC Five Year Implementation Strategy for Woodfuels, the initial training would take place over a three-year period.

4.2 The training program encompasses the following components: (i) in-service training of professionals; (ii) management assistance to the Central Coordinating Body and to participating regional training centers; and (iii) monitoring and evaluation of program implementation. These three components are complementary. The *professional training component* is designed to provide competence improvement in managerial, technical and analytical areas. The remaining two components, *assistance to the Central Coordinating Body and regional training centers*, and *program monitoring and evaluation* are necessary to ensure that training would be efficiently implemented and sustained over the long term.

4.3 The training program is viewed as a pilot activity with emphasis on energy strategy development as it relates to demand management in the key woodfuel-consuming sectors. However, because of the generality of the training design concept, the training plan could easily be extended to include other energy subsectors.

4.4 Each of the three program components will now be discussed in turn.

Component I: In-service Training of Professionals

4.5 The training program would be implemented over a three-year period. Over this period, two rounds of training activities would be conducted for up to 30 professionals per round. Each round of training would involve 20 weeks of activities spread over 30-35 calendar weeks.

4.6 Professional training would have both a regional and a country-level focus. The regional emphasis aims to effectively (i) deliver technical know-how, (ii) provide skills transfer, (iii) build consensus, and (iv) raise awareness among energy professionals. The country-level emphasis would (i) place the training within the context of country-specific energy strategies by using case studies from different SADCC countries, and (ii) train key professional operatives to enable them to instruct their colleagues and subordinates at the working level.

4.7 Through the proposed training program, energy planners, statisticians, policy analysts, and computer specialists from energy ministries and departments, and from central statistical organizations would be invited to regional training. In addition, technicians, such as enumerators, field supervisors, data entry operators, would receive on-the-job training at the national level through instruction from the personnel trained at the regional level. As part of the training program, senior government officials, such as Directors, their deputies, and department heads,

would be invited to attend familiarization seminars on energy strategy issues for the households and small-enterprise sectors.

Modules and Courses

4.8 The training program has been developed as an integrated package of interrelated thematic modules. Each module, in turn, is comprised of a sequence of courses and one or more specific training activities. The modular approach has been utilized because of its flexibility in allowing training activities to be matched to the specific needs of professionals from diverse backgrounds.

4.9 At the Training Program Design Workshop held in Arusha, Tanzania in April 1991, the consensus among SADCC TAU officials and SADCC country delegates was that highest priority in the training program should be placed on the following modules:

		<u>Length of Training</u>
Module 1.	Managing and Planning National Energy Projects	
	I.1 Principles of Project Management	2 weeks
	I.2 Planning and Managing Energy Survey Projects	1 week
Module 2.	Survey and Policy Analysis Applications	
	Block 1: Survey Design and Field Operations	
	I.1 Sample survey design	2 weeks
	I.2 Questionnaire design	2 weeks
	I.3 Enumeration (interview) techniques	1 week
	Block 2: Data Preparation and Processing	
	II.1 Data Preparation (editing, coding, data entry, validation)	2 weeks
	II.2 Design of energy survey processing system	1 week
	II.3 Development of application program modules	2 weeks
	Block 3: Analysis and Presentation of Results	
	III.1 Analytical techniques for energy strategy studies	3 week
	III.2 Reporting of survey and analysis findings	2 weeks
Module 3.	Training of Trainers	2 weeks
<u>Grand Total</u>		20 weeks

4.10 A two to four day Senior Policy Seminar on Energy Strategy Issues for Household and Small-Enterprise Sectors would be held at the start of the training activities, to provide senior government officials with a greater awareness about the energy data and policy analyses needed to attain energy demand management policy objectives.

4.11 Different types of professionals are expected to participate in different modules and blocks. Table 4.1 shows the modules to be taken and training weeks recommended for each round by professional specialty areas. Although the full training takes place over 20 weeks, individual trainees would normally only be required to participate from 6 to 15 weeks, depending on specialty. To reduce the length of time in which participants would need to be away from their duty stations, the actual training events would be delivered over a period of 30-35 calendar weeks.

Table 4.1: Training Weeks Recommended For Each Round By Professional Specialty

	<u>Professional Specialties</u>			
	<u>Energy Planners</u>	<u>Statisticians/ Survey Managers</u>	<u>Policy Analyst/ Government Researchers</u>	<u>Computer Specialist/ Data Processors</u>
1) Module 1: Principles of Project Management	2 weeks	2 weeks		
2) Module 2 /Block 1: Survey Design and Field Operations				
I.1 Sample survey design	0.5 week (*)	2 weeks		
I.2 Questionnaire design	1 week	2 weeks		
I.3 Enumeration (Interview) techniques	0.5 week (*)	1 week		
3) Module 1: Planning and Managing Energy Survey Projects	1 weeks	1 week		
4) Module 2 /Block 2: Data Preparation and Processing				
II.1 Data Preparation		0.5 week (*)		2 weeks
II.2 Design of energy survey processing system		1 week	1 week	1 week
II.3 Development of application program modules		0.5 week (*)	1 week (*)	2 weeks
5) Module 3: Training of Trainers	2 weeks	2 weeks		2 weeks
6) Module 2 /Block 3: Analysis and Presentation of Results				
III.2 Analytical techniques for energy strategy work	1 week (*)	1 week (*)	3 weeks	
III.2 Reporting survey and analysis results	1 week	1 week	1 week	
Total Required Training Weeks (nominal)	9	14	6	7

Note:

(*) Indicates that trainee would not sit for the full course, but would only take introductory sessions

Selection of Candidates

4.12 The regional training program is designed to encourage integrated efforts and collaboration between national institutions. To achieve this objective, at least two teams of three professionals from each participating country should participate in the program. Candidates should represent Ministries of Energy and Central Statistical Organizations. In addition, representatives from other agencies who might share some of the responsibility for implementing energy policies, such as the Forest Commission and the Ministry of Agriculture, would be considered for inclusion, depending on the institutional arrangements in each individual member country.

4.13 A factor integral to the success of the program would be the selection of appropriate professionals to receive training.^{6/} Target personnel should be middle-level energy professionals in sector and line ministries who are charged with day-to-day responsibilities for preparing and implementing policies and programs relating to the woodfuel sector, and statisticians at various levels. Preferably, these professionals would be key personnel in a position to influence departmental priorities and practices, and to mobilize project resources.

4.14 Several program eligibility criteria have been established to assist in candidate selection. Prerequisites vary by subject module and course and are to be applied as follows:

- (a) candidates should have already received basic training in relevant subject areas through formal education in a higher-level academic program, and they shall possess a minimum of a BS, BA or professional equivalent first college degree;
- (b) candidates must be experienced in fields of specialty relevant to energy policy planning, survey and statistics, or computer processing, preferably with several years experience; and
- (c) candidates must be available for follow-up after training completion.

4.15 Qualified candidates, upon successful completion of the training, would be equipped to work more effectively with energy sector policy and related information issues, at both the departmental and the inter-agency levels. In addition, they would be in a position to facilitate an exchange of their acquired skills with others within their respective national agencies. Finally, their ability to engage in inter-ministerial dialogue for the purposes of planning, managing, and analyzing energy information would be enhanced.

^{6/} Defining and selecting suitable participants for training is most crucial. To address this issue, it is proposed in Appendix II that several training program eligibility criteria be applied, and that SADCC TAU be active in communicating with national energy and statistical agencies to ensure the most effective professional participation.

Case Studies

4.16 Training activities would employ a combination of in-service training workshops, seminars, classroom lectures, short field tours, and ex-post regional dissemination seminars, depending on the specific subject matter content and target audience. The training events would usually be delivered in workshop format. The workshop deliberations primarily would be held in working group sessions to maximize the contribution of all participants.

4.17 During the training activities, country-level case studies and case discussion exercises would be the basis for the learning experiences. Case studies would reflect actual experiences in the region and highlight special considerations for designing, executing, and analyzing energy surveys. The goal would be to address a number of pertinent issues such as (i) when it is appropriate to apply various methods and survey instruments, and (ii) the different types of data and analyses that are required for formulating, reviewing, and monitoring woodfuel demand management policies and programs in the SADCC region.

4.18 Two main aspects of woodfuel demand management strategy work would be addressed by the case studies:

- a) *woodfuel conservation and end-use efficiency*, emphasizing survey applications to obtain data on cooking habits, the absolute and relative efficiency of end-use practices, consumer preferences and characteristics, and the impact of marketing strategies for improved end-use appliances (e.g., stoves); and
- b) *fuel switching*, emphasizing survey applications to obtain data on consumers preferences, seasonal patterns of using woodfuels and other fuels (e.g., kerosene, electricity, LPG, coal), mechanisms and structures for adjusting prices, performance of wholesale and retail markets for distributing woodfuels, and alternative fuels and appliances, etc. Analytical tools for identifying target groups, market segments, market distribution constraints to substitution, and projecting future energy demand by fuel market segment would also be covered.

4.19 The link between energy survey and analysis training with "operational" efforts at the national level is an important aspect of the training program design. Therefore, case studies would be developed through operational cooperation with national agencies and institutions from SADCC countries who are involved in energy demand management activities on an evolving basis.

Component II: Management assistance to the SADCC TAU and to participating training centers

4.20 SADCC TAU would have overall responsibility for executing the training program over the initial three-year implementation period, and ensuring its future sustainability. SADCC TAU would perform the planning, programming, organizing, coordinating, budgeting, and cost control functions, as well as program evaluation. SADCC TAU would also work towards establishing a system that becomes a regular part of its overall energy sector program, where responsibilities to plan, organize, acquire financing and other tasks associated with implementing the training program eventually become institutionalized within the existing SADCC TAU organizational structure. Specific tasks would include:

- (a) establishing mechanisms for coordinating tasks;
- (b) operationalizing the training strategy recommended at the Training Program Design Workshop (Arusha, Tanzania), including establishing procedures for periodic review, planning and revision of the program;
- (c) directly supervising the regional training centers in the execution of training events;
- (d) contributing to methodological developments in the training program design, and evaluating future regional training needs;
- (e) developing and implementing a system for regular program evaluation, including an information system for evaluation; and
- (f) mobilizing regional and external funding to implement the training program over the long term.

4.21 During the three-year execution period, the SADCC TAU may require management assistance aimed at strengthening their capacity to plan, organize, administer and monitor the training program over the long term. This means that, in the context of the training program, close supervision of its operating procedures, human resources and materials management, and periodic review of its internal functioning capacity in the planning, procedural, and methodological areas would be undertaken by the World Bank, who would act as the Supervising Agency.

4.22 Another element of Component II is strengthening the internal capacity of the participating regional training centers in areas where deficiencies are identified. The participating training centers are responsible for delivering custom-made courses and training materials to match the needs of the region, especially in the context of woodfuel demand management. Consequently, assistance in developing the subject matter materials, and in preparing and testing of the materials would be needed.

Component III: Monitoring and Evaluation of Program Implementation

4.23 The performance of the training program would be monitored and evaluated jointly by SADCC-TAU and the World Bank. In addition to the usual end-of-workshop evaluation questionnaires, the Central Coordinating Body and the participating regional training centers would be evaluated to ensure that they had executed their responsibilities effectively. A monitoring and evaluation system (M/E) would be established to systematically monitor process of the training program and to test whether competence improvement objectives have been attained as a result of the training activities.

4.24 Four aspects of the training program would be evaluated: (i) process monitoring of the work plan to see that tasks are completed on time; (ii) the impact of the training program on the individual trainee; (iii) the impact on the management capabilities of the Central Coordinating Body and the participating regional training centers; and (iv) the impact on the Energy Departments' and Planning Offices' working practices in survey and policy analysis activities.

4.25 *Process monitoring of the program's work plan.* The training program itself would be evaluated against its achievement of scheduled tasks and their timeliness. Planned inputs, costs, and activities would be compared to actual performance.

4.26 *Impact on the individual trainee.* As the program is oriented towards professional training at the working level, follow-up has to be conducted after the participants have returned to their respective parent organizations. To this end, trainees would be evaluated to ascertain whether there is an observable improvement in the level of their on-the-job performance. Certain aspects of individual performance would be evaluated by looking at the specific products produced during the various training activities. Other aspects of performance would be evaluated by observing on-the-job changes in attitude, knowledge, skill and relating these changes to the training program activities, employing the following four measures:

- (a) on-the-job appraisal of trainees (self-assessment interviews, interviews of peers, superiors, subordinates);
- (b) investigation of the "transfer setting";
- (c) use of control groups; and
- (d) post-training follow-up.

4.27 *Impact on the management capability of SADCC TAU and regional training centers.* This aspect of the evaluation process would review the degree to which program inputs are being effectively managed and used. To this end, the performance of the key regional institutions involved in the program (e.g., the SADCC TAU and regional training centers) would be evaluated.

The internal capabilities of these key institutions, as well as their effectiveness in delivering needed outputs, would be regularly tested.

4.28 For the SADCC TAU, evaluation would involve reviewing performance in the following areas: coordination, planning, administration, cost performance, and schedule performance relating to their responsibilities to the training program. The SADCC TAU's capability to define coordinating mechanisms and operationalize them in an effective manner would be reviewed. Measures for monitoring and evaluating SADCC TAU's performance would be established for the following areas: functional, procedural, methodological, management of financial, and material and human resources. The evaluation criteria would be agreed upon with the SADCC TAU, at the start of the training program implementation. Where constraints are identified, they would be targeted for follow-up action.

4.29 The regional training centers would be evaluated in light of their capability to provide quality instruction, contribute towards program development, and to flexibly meet the training needs of the region. The performance of instructors, and the effectiveness to which training services are delivered (materials, facilities, methodology, and course content) would be routinely reviewed.

4.30 *Impact on the Energy Departments' and Planning Offices' working practices.* A key performance question is whether the training program is influencing the professional working environment of relevant agencies. Over the long term, we would expect the training program to begin to show positive impacts at the organizational level, consistent with the program objectives listed in Section III (para 3.8).

Establishing a M/E system

4.31 In order to conduct these four reviews, a M/E system would have to be established from the start. The M/E system would be designed jointly by the SADCC TAU and World Bank. It would track progress and performance through each program stage (e.g., before, during, immediately at end of training session, and post-training follow-up). Specifically, the M/E system would include process monitoring; program auditing; trainee and training center performance reviews, including ex-post evaluations; and assessments of impact on individual professionals and their organizations. Feedback from the M/E system would be channeled to the SADCC TAU and World Bank on a regular basis to transfer lessons of experience and facilitate flexible revision of the program as required over time. The M/E system would enable procedures to be established for systematic collection of data on the program for assessment of progress and performance.

Recommended Institutional Framework

4.32 The training program would be implemented by the SADCC TAU with World Bank assistance. The ECA-sponsored Statistical Training Program for Africa (STPA) and the Eastern and Southern Africa Management Institute (ESAMI) would collaborate closely. The twinning institution, Statistics Sweden, and appropriate national agencies are expected to play important roles as well.

4.33 The institutional arrangements to be set up for the training program would aim to: (i) maximize the comparative advantages of the participating institutions and (ii) ensure an African presence and ownership in program planning and implementation.

4.34 The following are the recommended institutional arrangements:

- 1) The SADCC Energy Sector TAU would be designated as the Central Coordinating Body with full planning, administrative and coordination responsibility for the training program.
- 2) The World Bank would serve as Supervising Body. The World Bank would play an pivotal role due to its broad working knowledge of energy sector strategy development issues, policy, and methodologies in the region.
- 3) An African regional statistical training center, and a management training institute would participate in their areas of expertise^{2/}.
- 4) Energy Policy and Planning Research Institutions in Southern Africa, in collaboration with World Bank, would handle training delivery in the policy analysis subject area. The Economic Development Institute of the World Bank (EDI) might also play a role in training for energy policy analysis.
- 5) A National Statistics Development Institution with experience in addressing issues concerning national statistical organization and institutional collaboration in statistics would assist in the design and implementation of infrastructure for energy surveys,

^{2/} Candidates are:

(a) the ECA-sponsored Statistical Program for Africa, STPA and specifically its regional institution Eastern African Statistical Training Center (ESTAC) in Dar es Salaam; and

(b) Eastern and Southern African Management Institute (ESAMI), a regional management development institute.

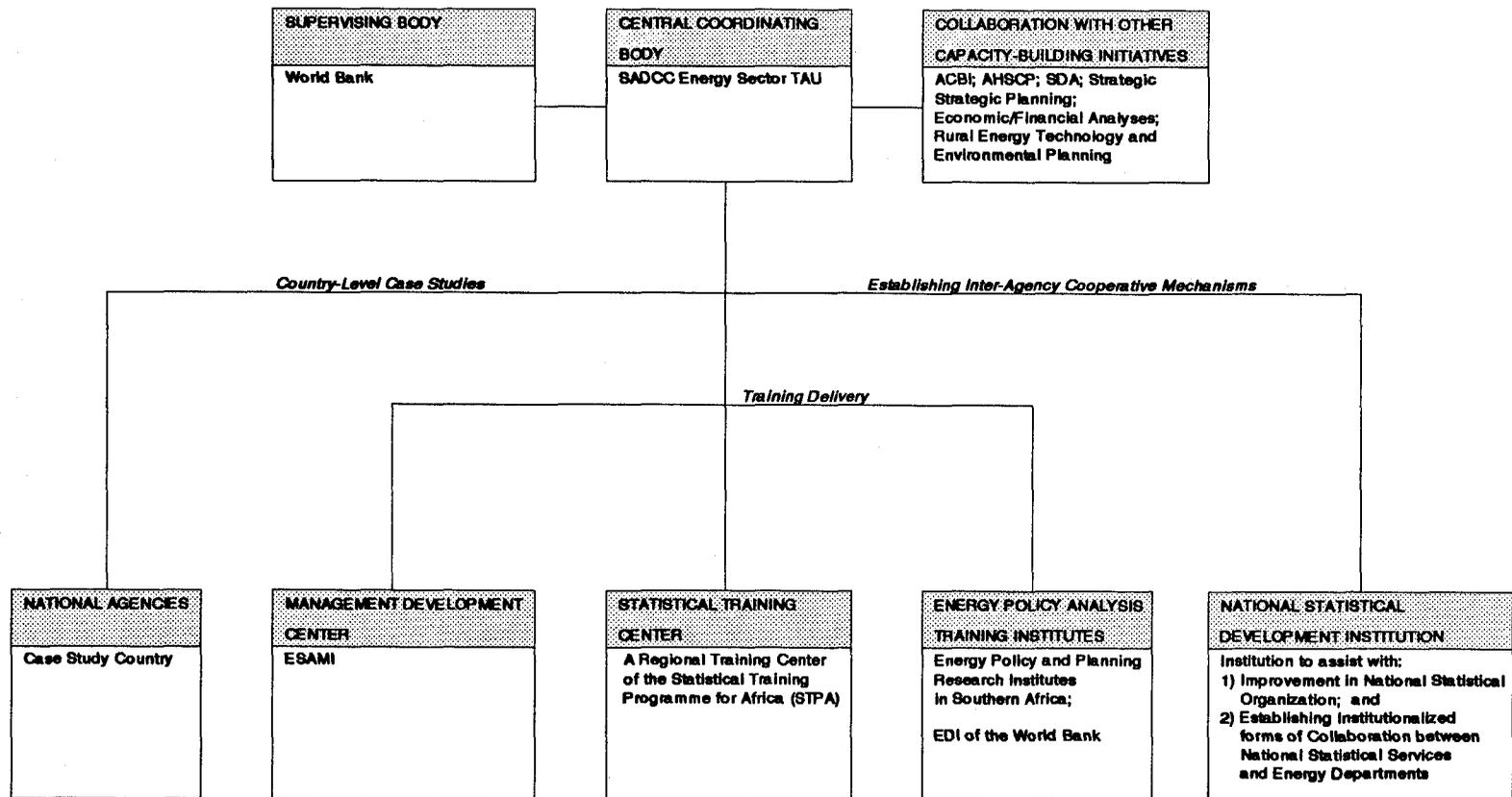
and in setting up cooperating mechanisms between energy agencies and central statistical organizations ^{8/}.

4.35 Where relevant on-going energy strategy activities are identified in a given country, the national agencies actively participating in project planning and implementation would be consulted. In addition, the training program would benefit from coordinating with other capacity-building initiatives, such as (a) programs offering formal training in statistics or policy analyses, (e.g., the Social Dimensions of Adjustment Program of the World Bank (SDA)); (b) capability-building initiatives having related objectives, such as the U.N Africa Household Survey Capability Program (AHSCP) and African Capacity Building Initiative (ACBI); and (c) complementary training programs (international, regional or national training) covering subjects such as Economic and Financial Analysis, Strategic Planning, or Rural Energy Technology and Environmental Planning.

4.36 Figure 4.1 depicts the recommended institutional framework.

^{8/} In the area of national statistical organization, Statistics Sweden has extensive regional expertise through its twinning arrangements with the Central Statistical Offices in Tanzania, Zimbabwe and Lesotho. Thus, Statistics Sweden could play a key major role in assisting to establish an institutionalized form of collaboration between National Statistical Services and Energy Departments in the region.

Figure 4.1: Institutional Framework



V. Expected Training Program Outputs

5.1 The regional training program is oriented towards influencing policymaking at the national level. It is expected to contribute to the design of a more effective energy strategy for households and small-scale enterprises by enabling professionals in national departments to acquire needed competencies. In addition, the training is expected to result in (i) enhanced capabilities of national energy agencies with responsibilities for woodfuel implementation strategy, (ii) improved capacity of national statistical services to produce energy information for policy work, and (iii) improved inter-agency collaborative mechanisms.

5.2 The specific regional and country-level outputs are listed below.

Short-Term Country-Level Outputs

- (a) up to sixty professionals from energy departments, energy planning offices and central statistical organizations would be trained, six from each SADCC member country;
- (b) senior government officials in the energy sector would be sensitized to the energy data and policy analyses needed to attain energy demand management policy objectives;
- (c) project leaders and managers from energy and statistical agencies would enhance their existing capabilities and acquire new competencies in survey project planning, field operations management, project evaluation, and project proposal and report writing;
- (d) technical specialists from the region would be able to design good quality questionnaires, realistic household survey samples, relevant tabulation plans, field manuals, appropriate data processing application programs, and produce useful data analysis and reporting outputs;
- (e) after attending the course, core professionals within energy agencies or central statistical organizations would have skills as trainers/teachers, and would be able to conduct seminars and workshops, at the national level, with emphasis on training local enumerators, field supervisors, data preparation staff, and policy analysts. The regional training is expected to contribute a substantial value-added to the on-the-job performance of individuals that would be facilitated by learning from shared experiences;

- (f) senior officials and line managers from the region would have a greater awareness of the necessary skills and resources for energy policy analysis and planning at the national level, including essential national energy information infrastructure and inter-agency collaboration mechanisms for effective energy information production;

Short-Term Regional Outputs

- (g) two rounds of the series of regional training activities would be conducted, each comprised of a total of 20 training weeks;
- (h) the training program administrative and coordinating function of the SADCC TAU would be strengthened;
- (i) the regional training infrastructure would be strengthened to ensure that the participating training centers develop appropriate materials and teaching methods to service the needs of the SADCC region in the context of energy demand management;
- (j) other short-term outputs that would be generated from the activity include:
 - (i) a SADCC Regional Handbook on Energy Survey and Policy Analyses for the Woodfuels Sector would be developed; the Handbook would be used in future training activities within SADCC and would be based on the case studies; the Handbook would be in a format to facilitate dissemination of the materials on survey design within the SADCC region, and would contain specific guidelines for applications in the SADCC region with respect to:
 - a. improving the design and execution of energy surveys in the household, institutional, and informal enterprises sectors;
 - b. demonstrating the relevance of particular types of survey instruments to enhance the formulation of policies and strategies for woodfuel demand management; and
 - c. demonstrating the appropriate techniques for analyzing energy policy options.
 - (ii) methodological documents, such as subject-specific policy analysis plans and technical guideline papers would be prepared to facilitate the development of statistical and analytical capabilities;

- (iii) a set of guidelines for establishing cooperating mechanisms would be prepared to provide a framework for replicating energy surveys through routine collaboration between the Energy Departments, energy planning offices, and central statistical organizations in the SADCC countries; and
- (iv) a number of reports would be produced in collaboration with the SADCC TAU on the progress of the activity for dissemination through future editions of the SADCC Energy Bulletin.

Long-Term Country-Level Outputs

- (k) the training would lead to improved availability of policy inputs, enhanced capacity of energy agencies to prepare energy strategies and plans, and to execute and monitor energy policies;
- (l) over the long-term, national infrastructure for survey activities would be improved, and a cooperative platform between involved energy and statistical agencies would be established;

Long-Term Regional Outputs

- (m) a SADCC Regional Information Documentation and Dissemination Center would be established for continuous collection, updating, and dissemination of country and international experiences. The Information Center would serve as a clearing house of published materials on state-of-the-art methods in data collection and analytical techniques for policy analysis, and best practices from regional and international experiences; and
- (n) a Regional Advisory Services would be established, comprised of a pool of experts in survey and policy analysis applications from within the SADCC region.

VI. Training Program Implementation

6.1 The training program would be implemented over a three-year period, and executed in three stages. The first stage would emphasize the building of the foundation for the training program, preparation of training materials and case studies, and pilot testing a training module (Module 1: "Managing and Planning National Energy Projects"). The second stage would be comprised of implementing the first full round of training activities, and evaluating program implementation. The final stage would involve the preparation of the second round of training activities and performance evaluation. This last segment would not end with the completion of the training sessions, but would extend for an additional three to six months to include post-training follow-up of trainees from the second and the first round. The three-year implementation of the program would close with a workshop on the experiences and lessons learned, and a review of the program framework that by then would have been set up for continued implementation.

Stage I:

- Task 1:** Setting up the institutional foundation for the training program. The sub-tasks include: installation of the Central Coordinating Body; setting out the coordinating and administrative framework, and establishing operating procedures to be followed; sub-contracting training centers; identifying core resource persons and setting out Terms-of-References.
- Task 2:** Conduct a Program Launch Workshop. The purpose of this workshop would be to undertake a comprehensive review of the regional training implementation plan by all key staff who would be directly involved in the program implementation. The workshop would be attended by (i) counterparts from the World Bank, (ii) the SADCC TAU, (iii) the participating regional training centers, (iv) participating national agencies from case study countries, and (v) consultants. This group would review the program design guidelines, training activities, implementation schedule, and clarify assignments and responsibilities.
- Task 3:** Conduct the first Senior Policy Seminar to (i) brief senior executives on the training program design, its goals and expectations and to solicit feedback; (ii) familiarize senior executives with data and policy analysis needed to attain energy demand management objectives; and (iii) generate commitment.

Task 4: Develop detailed course programs and training materials; identify case study material and design case studies; identify suitable energy modelling software; prepare and produce other substantive background documentation materials. Pilot test one training module.

Task 5: Develop a system for monitoring and evaluating program implementation. Pilot test the M/E system.

Stage II:

Task 6: Develop detailed course programs and training materials; identify case study material and design case studies; identify suitable energy modelling software; prepare and produce other substantive background documentation materials for the first round of training activities.

Task 7: Conduct the first round of training activities.

Task 8: Perform post-training evaluation, including 3-4 month post-training follow-up on trainees; extensive review of performance of institutions involved, and any required improvement fine-tuning.

Stage III:

Task 9: Conduct the second Senior Policy Seminar.

Task 10: Develop detailed course programs and training materials; identify case study material and design case studies; identify suitable energy modelling software; prepare and produce other substantive background documentation materials for the second round of training activities. This may involve some revision and updating of training materials already developed in Task 6. Therefore, the preparatory work for the second round is expected to require less resources than for the first round.

Task 11: Conduct the second round of training activities.

Task 12: Perform post-training evaluation and end-of-project review.

Task 13: Prepare and finalize a SADCC Handbook on Energy Survey and Policy Analysis Applications. The Handbook would be used in future training activities and would be based on the case study materials developed during Round 1 and Round 2 of the training program. The Handbook would receive wide dissemination within the SADCC region.

- Task 14: **Project Close Workshop:** The purpose of this workshop would be to (i) disseminate the findings of the three-year program evaluation to key operational staff involved in the implementation, and to senior executives from relevant government department; and (ii) to develop an action plan for future implementation of the program as part of a continuing commitment to training by the region.
- Task 15: Prepare the project final report, documenting the finalized training implementation framework, operating guidelines, results of performance evaluation, and action plan for implementation in the future.

6.2 The estimated cost of the regional capacity-building program is 2.5 million US Dollars over three years.