

**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF FINANCE AND ECONOMIC AFFAIRS**



MILLENNIUM CHALLENGE ACCOUNT - TANZANIA

MONITORING AND EVALUATION PLAN

March, 2010

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LIST OF ABBREVIATIONS AND ACCRONYMS

AADT	Average Annual Daily Traffic
DMA	District Metering Area
DPO	District Project Officer
ERR	Economic Rate of Return
GDP	Gross Domestic Product
GoT	Government of Tanzania
HBS	Household Budget Survey
IRI	International Roughness Index
KVa	Kilo volt ampere
KWh	Kilowatt hour
M&E	Monitoring and Evaluation
MCA-T	Millennium Challenge Account – Tanzania
MCC	Millennium Challenge Corporation
MIS	Management Information System
MKUKUTA	Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania (Swahili acronym for National Strategy for Growth and Reduction of Poverty)
MKUZA	Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Zanzibar (Swahili acronym for the Zanzibar Strategy for Growth and Reduction of Poverty)
MLD	Million Litres per Day
MoFEA	Ministry of Finance and Economic Affairs
MVa	Megavolt Ampere
MoCT	Ministry of Communication and Transport
MWh	Megawatt hour
NORAD	Norwegian Agency for Development Cooperation
NPS	National Panel Survey
NRW	Non Revenue Water
T&D	Transmission and Distribution
TANESCO	Tanzania Electric Supply Company
TANROADS	Tanzania National Roads Agency
TAA	Tanzania Airport Authority
TBD	To be determined
TOR	Terms of Reference
TWG	Technical Working Group
URT	United Republic of Tanzania
US\$	United States Dollar
ZECO	Zanzibar Electricity Corporation

MONITORING AND EVALUATION PLAN

1 INTRODUCTION

The Government of Tanzania is implementing the Millennium Challenge Account – Tanzania (MCA-T). On 17th February 2008, the Government of the United States of America, acting through the Millennium Challenge Corporation (MCC), and the Government of the United Republic of Tanzania (URT) acting through the Ministry of Finance and Economic Affairs signed a US\$ 698.1 million Millennium Challenge Compact. Annex III of the Compact describes the outline and development of the Monitoring and Evaluation (M&E) Plan.

The Compact is to be implemented over a period of five (5) years, with infrastructure projects being the core components. Parallel to the above will be monitoring and Evaluation (M&E) functions under the Compact. The latter plays an important role in the management of the program by ensuring that the resources going into the compact are being utilized effectively and efficiently; activities are implemented in a timely manner; services generated are being accessed, utilized and beneficiaries are satisfied with the services; and the expected results are being achieved in a sustainable manner. This document outlines plan for implementing monitoring and evaluation activities of MCA – T. The document will serve the following functions:

- i. Explains in detail how the MCC and Millennium Challenge Account-Tanzania (MCA-Tanzania) will monitor each project to determine whether intended results are achieved.
- ii. Provides a strategy for measuring longer term impacts over time through the evaluation design.
- iii. Serves as a guide for program implementation and management, so that MCA-Tanzania staff, program implementers, beneficiaries, and other stakeholders understand the objectives and targets they are responsible for achieving, and are aware of their progress towards those objectives and targets during implementation.
- iv. Establishes a process to alert implementers, stakeholders and MCC to any problems in program implementation and provides the basis for making any needed program adjustments.

The document starts by giving the summary of project objectives; and plans for collecting, communicating and utilization of information generated by Monitoring and Evaluation (M&E) system. The document, in addition, identifies critical assumption and risks and winds up by

highlighting institutional arrangements; work plan and budget for the whole duration of the compact.

MCC and MCA-Tanzania may make adjustments to the M&E Plan as needed, provided that any significant modifications or amendments of the plan have been approved by MCC and are consistent with the requirements of the Compact and any relevant Supplemental Agreement between the Parties.

2 SUMMARY OF PROGRAM AND OBJECTIVES

2.1 Background

The United Republic of Tanzania, comprised of the mainland and Zanzibar, is strategically located in East Africa bordering the Indian Ocean and eight nations.¹ Following independence from British colonial rule in 1961, Tanganyika (i.e., Mainland Tanzania) established a democratic government and merged with Zanzibar in 1964 to form the United Republic of Tanzania (URT). In the 1990s, the policies of the Government of Tanzania (GoT) began to shift toward market liberalization and reform. This trend has continued and strengthened over the last several years and Tanzania has achieved a high degree of macroeconomic stability. Although economic growth slowed somewhat in 2006 due to a drought, Tanzania continues to be one of the Africa's high performers and real GDP was projected at 7.2% in 2008.²

In spite of this macroeconomic stability and 6.4% annual growth, nearly 36% of the Mainland population³ and 49% of the Zanzibar population⁴ live below the national poverty line. An inadequate transportation network, an insufficient and unreliable supply of energy, and a shortage of potable water were identified as three key constraints to economic growth and private investment in Tanzania. The Millennium Challenge Compact Program is designed specifically to address each of these constraints.

2.2 Overall Program Goal

The overall goal of the Compact is to advance economic growth and poverty reduction in Tanzania through strategic investments in transportation, energy and water infrastructure.

Project Objectives

- (a) To increase cash crop revenue and aggregate visitor spending through the Transport Sector Project.

¹ Tanzania's border countries include Kenya, Uganda, Rwanda, Burundi, Democratic Republic of Congo, Zambia, Malawi, and Mozambique.

² Country Report August 2007, The Economist Intelligence Unit. www.eiu.com

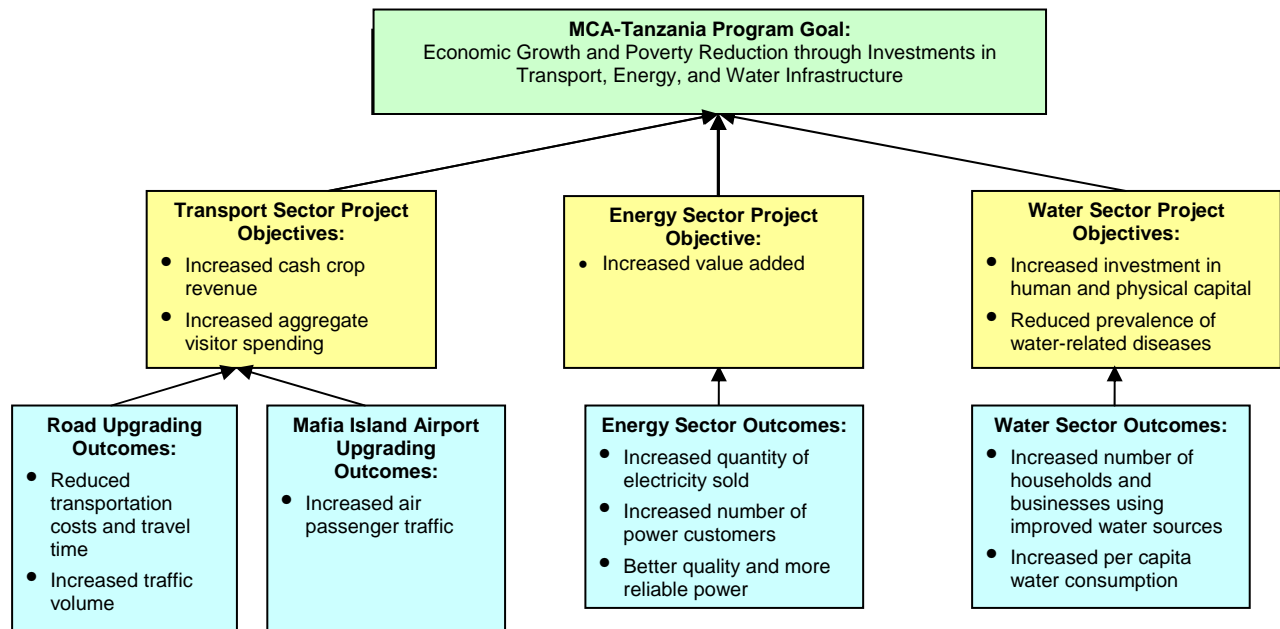
³ Poverty and Human Development Report 2005, GoT Research & Analysis Working Group.

⁴ 2004/2005 Household Budget Survey - Zanzibar, GoZ, Office of Chief Government Statistician September 2006.

- (b) To increase value added of businesses through the Energy Sector Project.
- (c) To increase investment in human and physical capital and reduce the prevalence of water-related diseases through the Water Sector Project.

The following diagram presents the logic of the Program:

FIGURE 1: PROGRAM LOGIC



2.3 Economic Rate of Return Analysis

Specific sub-projects or activities for MCC funding were selected based on Economic Rates of Return (ERR) greater than or equal to double the average of the economic growth rates in Tanzania over the previous three years (12.8%)⁵. Further, the monitoring indicators for the three Projects are tied closely to the assumptions used in the economic analysis of the Projects. The ERR calculations can be found at <http://www.mcc.gov/programs/err/err-tanzania.php>.

The sector-level Economic Rates of Return (ERR) for the mainland are: (1) transport sector 16.0%, (2) energy sector 26.7%, (3) water sector 20.3%, and the overall ERR for the Zanzibar projects is 17.8%.

TABLE 1: SUMMARY OF ECONOMIC RATES OF RETURNS

Project	Base Case ERR (Hurdle = 12.8%)	Estimated Range of ERR
Tanga – Horohoro	15%	12-17%
Tunduma – Sumbawanga	20%	17-23%
Mtwara Corridor	14%	12-16%
Mafia Island Airport	17%	15-20%
Malagarasi Hydropower	20%	5-31%
Tanga T&D	42%	15-58%
Dodoma T&D	16%	10-32%
Morogoro T&D	24%	5-41%
Iringa T&D	52%	25-69%
Mwanza T&D	31%	4-45%
Mbeya T&D	53%	10-80%
Dar Lower Ruvu	27%	23-31%
Dar NRW	21%	16-24%
Morogoro Water	5%	0-8%
Zanzibar Interconnector	21%	10-31%
Pemba Roads	12%	8-15%

2.4 Projects and Beneficiaries

Project 1: Transport Sector Project

- **Objectives:**
 - Increased cash crop revenue (roads upgrading)
 - Increased aggregate tourist spending; (refurbishing of Mafia Island Airport)
- **Activities:**

⁵ This hurdle rate corresponds to MCC Guidelines for Economic Analysis as of November 2005.

- **Mainland Trunk Roads:** Upgrading of up to 430 kilometers of trunk roads to bitumen pavement standards which include, Tanga-Horohoro, Tunduma–Sumbawanga and Namtumbo - Songea and Peramiho – Mbinga (on Mtwara Corridor);
 - Zanzibar Rural Roads: Upgrading of up to 35 kilometers of rural roads on Pemba Island
 - Road Maintenance: funding to improve maintenance management efficiency; and
 - Mafia Island Airport: Upgrading of Mafia Island Airport.
- **Beneficiaries:**
Beneficiaries were identified in feasibility reports as the population of the towns through which the road passed.

TABLE 2: BENEFICIARIES TRANSPORT SECTOR PROJECT

Activity	Estimated number of Beneficiaries by 2027
Tanga-Horohoro	397,946
Tunduma-Sumbawanga	587,360
Mtwara Corridor	456,007
Mafia Island Airport	73,819
Pemba Rural Roads	109,421
Total	1,624,552

Project 2: Energy Sector Project

- **Objectives:**
 - Increased value added to businesses.
- **Activities:**
 - **Zanzibar Interconnector:** laying of an approximately 40 km long, 132kV, 100MW capacity submarine electric transmission cable from the mainland to Unguja Island, Zanzibar;
 - **Malagarasi Hydropower and Kigoma Distribution:** install 8 MW of run-of-river hydropower; and constructing up to 570 km of transmission and distribution line extensions to distribute the power to the towns of Kigoma, Uvinza, Kasulu, and small settlements along the corridor; and
 - **Distribution Systems Rehabilitation and Extension:** rehabilitating existing distribution infrastructure (including new transformers and switchgear at up to 22 substations), and extending distribution line to unserved areas in Mwanza, Tanga, Morogoro, Iringa, Dodoma, and Mbeya regions.

- **Beneficiaries:**

Beneficiaries are estimated as the sum of existing and new customers by 2027. Customers include residential and industrial and commercial connections.

TABLE 3: BENEFICIARIES ENERGY SECTOR PROJECT

Activity	Estimated number of Beneficiaries by 2027
Malagarasi Hydropower	80,524
Tanga T&D	194,087
Dodoma T&D	127,356
Morogoro T&D	191,585
Iringa T&D	115,453
Mwanza T&D	274,959
Mbeya T&D	180,222
Zanzibar Interconnector	400,313
Total	1,564,498

Project 3: Water Sector Project

- **Objectives:**

- Increased investment in human and physical capital and reduced prevalence of water-related diseases

- **Activities:**

1. Lower Ruvu Plant Expansion : expanding the capacity of the Lower Ruvu water treatment plant serving the Dar es Salaam area, from about 180 million liters per day (MLD) to approximately 270 MLD;
2. **Non-Revenue Water:** improving system efficiencies in Dar es Salaam through reduction of non-revenue water via reduction in physical leaks and commercial losses; and
3. Morogoro Water Supply: improving water supply in Morogoro through rehabilitating a water treatment plan and improving water transfer in the existing distribution network. The overall interventions will increase the production from the current 18 million liters per day to 33 million liters per day.

- **Beneficiaries:**

Beneficiaries are estimated as the sum of existing and new customers by 2027. Customers include residential and industrial and commercial connections.

TABLE 4: BENEFICIARIES WATER SECTOR PROJECT

Activity	Estimated number of Beneficiaries by 2027
Dar Lower Ruvu/	2,585,897
Dar Non-Revenue Water	
Morogoro Water	215,957
Total	2,801,856

Total Beneficiaries:

The total number of beneficiaries is the sum of beneficiaries from each of the activities, except in the case where there are two activities in the same region. The total beneficiaries exclude energy beneficiaries in Tanga, Morogoro and Mbeya to avoid possible double-counting with the Transport and Water projects in these areas.

TABLE 5: TOTAL BENEFICIARIES – ENERGY, TRANSPORT AND WATER PROJECTS

ctivity	Estimated number of Beneficiaries by 2027
Tanga-Horohoro	397,946
Tunduma-Sumbawanga	587,360
Mtwara Corridor	456,007
Mafia Island Airport	73,819
Pemba Rural Roads	109,421
Malagarasi Hydropower	80,524
Tanga T&D	194,087
Dodoma T&D	127,356
Morogoro T&D	191,585
Iringa T&D	115,453
Mwanza T&D	274,859
Mbeya T&D	180,222
Zanzibar Interconnector	400,313
Dar Lower Ruvu/	2,585,897
Dar Non-Revenue Water	
Morogoro Water	215,957
Total	5,425,013

3 MONITORING COMPONENT

Monitoring is an important process for ensuring proper implementation of the program. Effective monitoring of the program is considered to be essential to tracking how effective the delivery of inputs, money and goods, is during Program implementation. A comprehensive system of monitoring and evaluation requires (a) defining the expected outcomes, (b) identifying monitoring indicators for final and intermediate outcomes, as well as outputs that contribute to achieving the outcomes, (c) ensuring that baseline data are available and d) targets are set to assess progress, and (e) making sure a system is in place to collect, analyze and report the data, and monitor progress.

Program and Projects' performance will be monitored through the regular tracking of indicators and organized reviews related to the objectives of the Program. The performance analysis allows Managements of MCA-Tanzania and MCC to make adjustments as necessary with a view towards improving the overall impact of the Program.

The program will be monitored through specified indicators which are consistent with Annex III of compact document and outlined below. Four types of indicators will be measured including the goal indicators, objective indicators, outcome indicators and activity level indicators. The plan also include timelines for measuring objectives, plans for establishing baselines and determining targets, when necessary, and frequency of measurement during the Compact Term. In addition to these four types of indicators, key process milestones will be included in this M&E Plan.

3.1 Indicators for Measuring Program Performance

The indicator definition Tables, attached as Annex 1 provide a detailed definition of each indicator, unit of measure, source of data, methods and frequency of data collection, and entity responsible for such collection of data. The Program results will be measured through quantitative, objective and reliable indicators. Each indicator will have one or more expected results, i.e. targets, that include the expected time by which that result will be achieved.

The Compact goal indicators will measure the impact of the program on the incomes of Tanzanians who participate or are covered by the Program. Objectives and outcome indicators will measure the results at the Project level, while Activity Indicators track the delivery of goods and services or construction, in the case of MCA-Tanzania. Once work plans are developed for each Activity, key process milestones will be identified from these work plans and included in the M&E Plan.

3.2 Baseline and Targets

Baseline and target values were derived from the Compact economic analysis. In addition, more baseline information will be obtained prior to program implementation through surveys. Data collected during implementation will be used to measure progress against these targets. This data will be submitted to MCC in Indicator Tracking Tables, attached as Annex 2. Indicator Tracking Tables show baseline and targets for each indicator. Prior to implementation of specific Activity indicated in the Compact, key process milestones and target dates for these milestones will be added to the M&E Plan.

3.3 Indicators Linked to Disbursements

To ensure that funds are invested in sustainable infrastructure, certain disbursements of funds under the Program have been linked to achievement of certain targets on the relevant as specified in the Program Implementation Agreement between MCC and MCA-T.

Specifically, the achievement of 90% or more of the target for each indicator specified in the table below for the applicable year shall be a condition precedent to any disbursement of funds for the relevant Activity (specified in the third column of the table below) for the following year. For example, the achievement of at least 90% of the target for Operations and Maintenance Cost Recovery Ratio [measured as (Total Revenue - Routine and periodic operations and maintenance expenses)/ (Routine and periodic operations and maintenance expenses)] for Year 2 shall be a condition precedent to disbursement by MCC of funds for the Morogoro Water Supply Activity for Year 3. For the Distribution Rehabilitation and Extension Activity, each region will be assessed separately. For example, the achievement of at least 90% of the target for Collection Efficiency for Morogoro (measured as monthly cash collection divided by monthly sales) for Year 2 shall be a condition precedent to disbursement by MCC of funds for Distribution Rehabilitation and Extension Activity in Morogoro for Year 3.

TABLE 6: THE INDICATORS AND LEVEL OF PERFORMANCE TIED TO FINANCIAL DISBURSEMENTS

Objective	Indicator	Definition	Unit	Baseline	Targets			
					Year 2	Year 3	Year 4	Year 5
Improved collection efficiency	Collection efficiency	<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Kigoma Malagarasi hydropower and Kigoma distribution activity (Kigoma)	Percent	57.05	67	76	86	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> –Distribution Rehabilitation and extension activity (Morogoro)	Percent	74.96	80	85	90	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Distribution Rehabilitation and extension activity (Tanga)	Percent	59.39	68	77	86	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Distribution Rehabilitation and extension activity (Mbeya)	Percent	68.51	75	82	88	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Distribution Rehabilitation and extension activity (Iringa)	Percent	81.97	85	88	92	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Distribution Rehabilitation and extension activity (Dodoma)	Percent	83.03	86	89	92	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Distribution Rehabilitation and extension activity (Mwanza)	Percent	92.83	91	93	94	95
		<i>Cash(Revenue from electricity bills collected that month/previous month's billing</i> Zanzibar Interconnector activity	Percent	86.55	87	90	93	95

Objective	Indicator	Definition	Unit	Baseline	Targets			
					Year 2	Year 3	Year 4	Year 5
Decreases technical and non-technical losses	Technical and non-technical losses	$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Malagarasi hydropower and Kigoma distribution activity (Kigoma)	Percent	36.98	32	28	23	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Distribution Rehabilitation and extension activity (Morogoro)	Percent	28.63	26	23	21	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Distribution Rehabilitation and extension activity (Tanga)	Percent	28.48	26	23	21	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Distribution Rehabilitation and extension activity Mbeya)	Percent	21.06	21	20	19	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Distribution Rehabilitation and extension activity (Iringa)	Percent	19.96	19	19	19	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Distribution Rehabilitation and extension activity (Dodoma)	Percent	19.96	19	19	19	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Distribution Rehabilitation and extension activity (Mwanza)	Percent	19.96	19	19	19	18
		$(kWh\ received\ by\ substation - kWh\ billed) / (kWh\ received\ by\ substation)$: Zanzibar Interconnector activity	Percent	26	23	22	21	20
Roads Maintained	Road maintenance expenditures	$Amount\ spent\ on\ maintenance\ the\ previous\ fiscal\ year / Amount\ budgeted\ for\ maintenance\ for\ the\ previous\ fiscal\ year$: Mainland Trunk Roads activity	Percent	79	82	86	90	95
		$Amount\ spent\ on\ maintenance\ the\ previous\ fiscal\ year / Amount\ budgeted\ for\ maintenance\ for\ the\ previous\ fiscal\ year$: Zanzibar Rural Roads activity	Percent	75	80	85	90	95
Improved operations and maintenance cost recovery ratio	Operations and maintenance cost Recovery Ratio	$(Total\ Revenue / Operating\ costs\ DAWASCO)$ Lower Ruvu Plant Expansion and Non-Revenue Water activity	Percent	108	118	133	146	151
		$(Total\ Revenue / Operating\ costs\ MORUWASA)$ Morogoro Water Supply activity	Percent	100.34	105	109	114	115

3.4 Data Disaggregation

The following data related to the Project and Project Activity indicators can be disaggregated by gender (of individual or head of household), age, and/or income.

- (a) Transport Sector Project
 - Number of passengers using Mafia Island Airport
- (b) Energy Sector Project
 - Number of power customers
- (c) Water sector project
 - Number of people using improved water sources
 - Per capita water consumption

3.5 Data Quality Reviews

Data quality review will verify reported performance data. Independent, third party reviewer(s) will be procured to assess the quality of the data gathered through the M&E reporting system to ensure that all data are as valid, reliable, and timely as resources will allow.

The data quality review will be part of periodic performance audits. MCA-Tanzania will contract the data quality reviewers competitively in compliance with MCC's Program Procurement Guidelines. The Terms of Reference for the data quality review must be approved by MCC. The M&E Director/Officer and other Directors/Officers, as appropriate, within MCA-Tanzania Management Unit should also regularly check data quality.

3.6 Reporting

3.6.1 Indicator Tracking Table

MCA-T will produce a regular report tracking the progress of each of the three projects. Progress reports will include data on the indicators, via the Indicator Tracking Table, which displays performance targets (projections) and tracks progress against them (actual) and, if necessary, explains the reasons for deviations from the targets. The Indicator Tracking Table is designed to help MCA-Tanzania and MCC track interim progress towards the Compact Goal. These reports will alert parties to any problems and serve as basis for recommendations of changes to project activities. The Indicator Tracking Table is part of Disbursement Request and Reporting package that MCA-Tanzania will be submitting to MCC on quarterly basis.

3.6.2 Narrative Report

The narrative report is the responsibility of all staff of MCA – Tanzania and will provide a brief description of previous quarter’s performance and explain how requested funds will be used in the coming quarter. The narrative report which is not a public document and is limited to five pages will include the following:

- Report on the status of implementation of activities planned during the previous quarter for each component of the program and provide explanations in case there are deviations from the plans,
- Highlight challenges that might affect implementation and propose measures to address the challenges,
- Highlight any significant M&E activities that took place during the quarter such as data collection, M&E Procurements and results of any M&E studies.

3.6.3 Annual Performance Review

MCA-Tanzania will conduct Annual Performance Reviews and submit an Annual Supplement to regular quarterly reporting. The Annual Supplemental Report will provide information on accomplishments and developments of Compact implementation related to progress on Activities, the consultative process, donor coordination and lessons learned and best practices. The Annual Supplemental Report will be submitted to MCC one month after the end of each US fiscal year (October 30). The content of the Annual Supplemental Report will be used by MCC to track program progress, and to produce country updates for public use, hence it should be approved by the MCA-T Board.

These annual performance reviews may include workshops. The workshop would be moderated by competent facilitator(s). Participants of the workshop would include representatives from a wide range of stakeholders. The workshops would provide opportunities for:

- Reviewing the overall implementation progress of MCA - T;
- Analyzing problems encountered in the course of implementation and discuss possible actions;
- Reviewing the projects and proposing modifications as necessary; and
- Using the findings for planning activities for the subsequent year.

4 EVALUATION COMPONENT

In order to determine the extent to which the implemented interventions have contributed to economic growth and poverty reduction, evaluation of the Program will be undertaken. This will be done by a contracted, independent party. There will be an end-of-compact evaluation and an impact evaluation of the Program. The end-of-compact evaluation, or compact completion report, will follow the guidelines established by MCC on compact completion reports.

The compact completion report will be complemented by an impact evaluation, which seeks to establish the linkages between the inputs and outcomes and whether the Program goal has also been achieved. Summarized below are details on the methodology, process, and timeline for the impact evaluation of the Program. In addition, ad hoc or special studies may be conducted on projects and/or activities.

4.1 Impact Evaluation

The key distinction between impact evaluation and other monitoring and evaluation techniques is that impact evaluation seeks to isolate the causal relationship between interventions and the welfare or well-being of beneficiaries. Given the objective of MCC to enhance economic growth, welfare will generally be captured by income, at the individual, household or more aggregate level. Since there are many factors influencing households' income and well-being in a given year, including multiple projects within an MCC Compact, often a simple before-and-after-comparison can lead to a misleading or incorrect assessment of project impacts. The challenge of impact evaluation, therefore, is to identify suitable control group to compare with the treatment group. The sections below describe the evaluation methodologies for each Project.

4.1.1 Transport Sector Project

The impact evaluation of the Transport Sector Project will seek to answer the following questions:

- Does a reduction in transport costs and travel times lead to increased access to markets and economic activity in towns/villages near a road?
- Was the Project cost effective, analyzed through re-estimated economic rates of return, comparisons to original estimates, and assessment of differences

In addressing the key questions above, the evaluation should also address:

- Differences in impact of the program, by gender, age, and income, when practicable.
- Unintended results of the program (positive and negative);
- Lessons learned applicable to other similar Projects

Summary of evaluation strategies are shown in Table 7 below and details are provided in Annex 4.

TABLE 7: SUMMARY OF STRATEGIES, COMPARISON GROUPS AND VARIABLES OF INTEREST (TRANSPORT SECTOR PROJECT)

Project/Activity	Proposed Methodology	Beneficiary	Comparison Group(s)	Variables of Interest
Mainland Trunk Roads	Difference-in-Difference with Propensity-score matching	Communities near upgraded roads	Communities that are matched to the beneficiary communities	Community-level: <ul style="list-style-type: none"> - Transport prices; availability of transport services - Input and output prices for agriculture - Capital investment - Employment - Migration patterns - Average household income - Health and education services, especially emergency medicine
Zanzibar Rural Roads	Difference-in-Difference with Propensity-score matching	households and business near the upgraded roads	Households and businesses that are matched to the beneficiary households and businesses	Community-level: <ul style="list-style-type: none"> - Transport prices; availability of transport services - Input and output prices for agriculture - Capital investment - Employment - Migration patterns - Average household income - Health and education services, especially emergency medicine Household level <ul style="list-style-type: none"> - Small scale agricultural practices and output - Social benefits, such as access to emergency health services
Mafia Island Airport	Before and After Comparison	Travelers to Mafia Island and tourist-oriented businesses on Mafia, after upgrade	Travelers to Mafia Island and tourist-oriented businesses on Mafia, before upgrade	<ul style="list-style-type: none"> - number of tourists and their stated reasons for visiting the island - number of tourist-oriented businesses - revenue of tourist-oriented businesses

4.1.2 Energy Sector Project

The impact evaluation of the Energy Sector Project will seek to answer the following questions:

- Does access to electricity lead to a) increased household income and better health and education outcomes and b) increased business activity, including new firms, capital investments and greater levels of employment; and if impact is detected, what is the magnitude of this impact?
- Was the Project cost effective, analyzed through re-estimated economic rates of return, comparisons to original estimates, and assessment of differences
- Would a simple before and after comparison of beneficiaries yield the same results as the regression discontinuity methodology (or methodology employed);

In addressing the key questions above, the evaluation should also address:

- Differences in impact of the program, by gender, age, and income, when practicable.
- Unintended results of the program (positive and negative);
- Lessons learned applicable to other similar Projects;

Summary of evaluation strategies are shown in Table 8 below. Potential evaluation strategies are discussed in more detail in Annex 4 of this document.

TABLE 8: SUMMARY OF STRATEGIES, COMPARISON GROUPS AND VARIABLES OF INTEREST (ENERGY SECTOR PROJECT)

Project/Activity	Proposed Methodology	Customer type	Comparison Group(s)	Variables of Interest
All Activities	Before and After Comparison	Existing household and business connections; New household and business connections	Households and businesses before Activities begin	<ul style="list-style-type: none"> - Power quality and reliability - Household income - Business income - Employment - Health outcomes - Child schooling attainment (or at least intensity of study) - Intra-household contribution to income and allocation of resources
Zanzibar Interconnector Activity	Before and After Comparison	New household and business connections	Households and businesses before Activity begins	
Malagarasi Hydropower and Distribution Systems Rehab/Extension Activities	Difference-in-Difference with Regression discontinuity	New household and business connections	Households and businesses who receive electricity compared to those that do not receive electricity (due to phased implementation, distance from the distribution lines or cost of connection)	

4.1.3 Water Sector Project

The impact evaluation of the Water Sector Project will seek to answer the following questions:

- Does access to better quality, more reliable water lead to increased household income through (i) lower prices paid for water as sources of water change, (ii) less time spent getting water so more time can be spent elsewhere, and (iii) fewer days spent ill or caring for ill family members and away from production?
- Does access to better quality, more reliable water lead to better health outcomes, in particular, a reduction of diarrhea among children under 5 years and of cholera?
- Was the Project cost effective, analyzed through re-estimated economic rates of return, comparisons to original estimates, and assessment of differences

In addressing the key questions above, the evaluation should also address:

- Differences in impact of the program, by gender, age, and income, when practicable.

- Unintended results of the program (positive and negative);
- Lessons learned applicable to other similar Projects.

Proposed evaluation strategies for water sector projects are as indicated in Table 9 below with details provided in Annex 4:

TABLE 9: SUMMARY OF STRATEGIES, COMPARISON GROUPS AND VARIABLES OF INTEREST (WATER SECTOR PROJECT)

Project/Activity	Proposed Methodology	Beneficiary	Comparison Group(s)	Variables of Interest
Lower Ruvu	Depends on design of activity	Households connected to the water network	TBD	<ul style="list-style-type: none"> - Average household income - Health outcomes (incidence of water-related diseases)
Non-Revenue Water (Dar es Salaam)	Depends on design of activity	Households connected to the water network	TBD	<ul style="list-style-type: none"> - Average household income - Health outcomes (incidence of water-related diseases)
Morogoro Water Supply	Before and After Comparison	Households connected to the water network after the project	Households connected to the water network before the project	<ul style="list-style-type: none"> - Average household income - Health outcomes (incidence of water-related diseases)

4.2 Ad Hoc Evaluations and Special Studies

The Program will be documenting its experiences and lessons. In addition to the planned impact evaluations, MCA-Tanzania may conduct special studies during implementation. The studies would be aimed at assessing stakeholders' perceptions of the MCA-Tanzania approaches, and if and how they affect communities in program areas. Focus of the studies would be on lessons learned during implementation of the project during the transfer of responsibilities to the implementing entities and the performance of institutions expected to promote and ensure sustainability. Lessons learnt from all the studies will be used for refinement of MCA-Tanzania approaches. Studies could include beneficiaries and stakeholders' feedback regarding access to, utilization of and satisfaction with the services delivered by the program, traffic count surveys, passengers' survey and investment and labor surveys.

5 DESCRIPTION OF ASSUMPTIONS AND RISKS

The program logic and expected outcomes and impact are based on specific assumptions about the linkages between individual project activities and the long-term goal of poverty alleviation. Assumptions inform the economic return analysis while risks are external to program implementation but are likely to affect Program success. The assumptions and risks for each of the three Projects are presented in table 10 below:

TABLE 10: PROJECTS' ASSUMPTIONS AND RISKS

Assumptions:	Risks:
Transport Sector Project	
<ul style="list-style-type: none"> ▪ Reduced transport costs and travel times, facilitating access to social and markets hence increased agricultural, mining and tourism activities ▪ Easier, more efficient, and safer access to Mafia Island resulting increase of tourist and business travel 	<ul style="list-style-type: none"> ▪ Poor quality roads are only one of the binding constraints to growth ▪ Increased cost a of construction materials (fuel, bitumen etc) ▪ Overloading of vehicles causing premature failure ▪ Contractor unable to timely mobilize required resources on the Island. ▪ Other destinations prove more attractive to travelers
Energy Sector Project	
<ul style="list-style-type: none"> ▪ Access to electricity leads to investments in productive assets and human capital. 	<ul style="list-style-type: none"> ▪ Timely completion of the necessary project preparatory work ▪ Failure of the Project to remain sustainable due to tariff reforms falling short of recovery costs or implementing agencies not realizing expected efficiencies in operations ▪ Electricity is only one of the binding constraints to growth
Water Sector Project	
<ul style="list-style-type: none"> ▪ Access to water leads to better health outcomes (fewer days sick and decreased under-five mortality), more time spent on productive activities and increased value-added for businesses. 	<ul style="list-style-type: none"> ▪ Failure for the Project to remain sustainable due to tariff reforms falling short of recovery costs or implementing agencies not realizing expected efficiencies in operations ▪ Failure to reduce poverty as the population targeted for transformation cannot, or is unwilling to, afford water connections ▪ Failure to complete the proposed interventions within the term of the compact

6 IMPLEMENTATION AND MANAGEMENT OF M&E

Implementation of MCA –T M&E activities will be done by all MCA – T Directorates and will be co-ordinated by the Directorate of Monitoring and Evaluation. Specific responsibilities and implementation arrangements are outlined below as follows:

6.1 Specific Responsibilities of Directorate of M&E

The specific responsibilities of the directorate will include, among others, guiding the establishment of the M&E system and strategy, including data-collection, data-analysis and reporting systems; coordinating the installation of hardware and software for M&E, including, if necessary, the Management Information System (MIS); ensuring that the M&E Plan and Economic Rates of Return (ERR) analysis are modified and updated, if necessary; and participating in the design of the evaluation strategy in collaboration with MCC.

6.2 Co-ordination of M&E Data Gathering

MCA –T will receive data and reports from a variety of partner institutions including project implementers (such as MORUWASA, DAWASA, TANESCO, TANROADS, TAA), the National Bureau of Statistics (NBS) and contracted survey firms. Co-ordination with the above institutions will be through relevant MCA – T directorates e.g. NBS will be co-ordinating with the directorate of M&E, MORUWASA and DAWASA with Water, TANESCO with Energy, TANROADS with Transport etc.

6.3 Dissemination of M&E Information

Dissemination of M&E information will be done in accordance with MCA –T Dissemination Strategy. The Directorate of M&E will be working hand in hand with the Outreach and Dissemination Department of MCA – T to ensure that relevant and accurate information are accessed by the stakeholders timely.

6.4 Review of the M&E Plan

If necessary, the M&E plan may be modified by MCA –Tanzania. These modifications will be consistent with MCC’s M&E Guidelines on modifying the M&E Plan.

6.5 The Management Information System (MIS)

MCA-Tanzania will establish a Management Information System (MIS), which will serve as the primary source of information for the overall M&E of the program, projects and activities. The MIS will be used as a management tool to track MCA-Tanzania inputs, processes, outputs and activities and to monitor whether these are being delivered in line with the expectations of MCA-

Tanzania and MCC. The MIS will provide information to MCA-Tanzania's stakeholders ⁶about the progress of projects and activities, and permit, MCA-Tanzania staff to track the movement of resources as projects are implemented. MCA-Tanzania's MIS will enable generation of the monthly, quarterly, and annual as well as ad-hoc reports on program activities.

6.6 Capacity Building of Stakeholders

Before beginning implementation of the Program and Projects' activities, the M&E department will familiarize stakeholders, MCA-Tanzania and Implementing Entities staff on how program performance will be measured. Specific training on M&E should be provided for implementers to comply with the M&E Plan. Additionally, in order to make stakeholders understand how M&E activities will be implemented, the M&E Manual will be prepared in year one. The preparation process will involve, among other things, conducting training needs assessment; preparation of manuals, and training of stakeholders.

⁶ Information to be availed to the public will be in accordance with MCC Guideline for M&E Plan.

7 INSTITUTIONAL FRAMEWORK

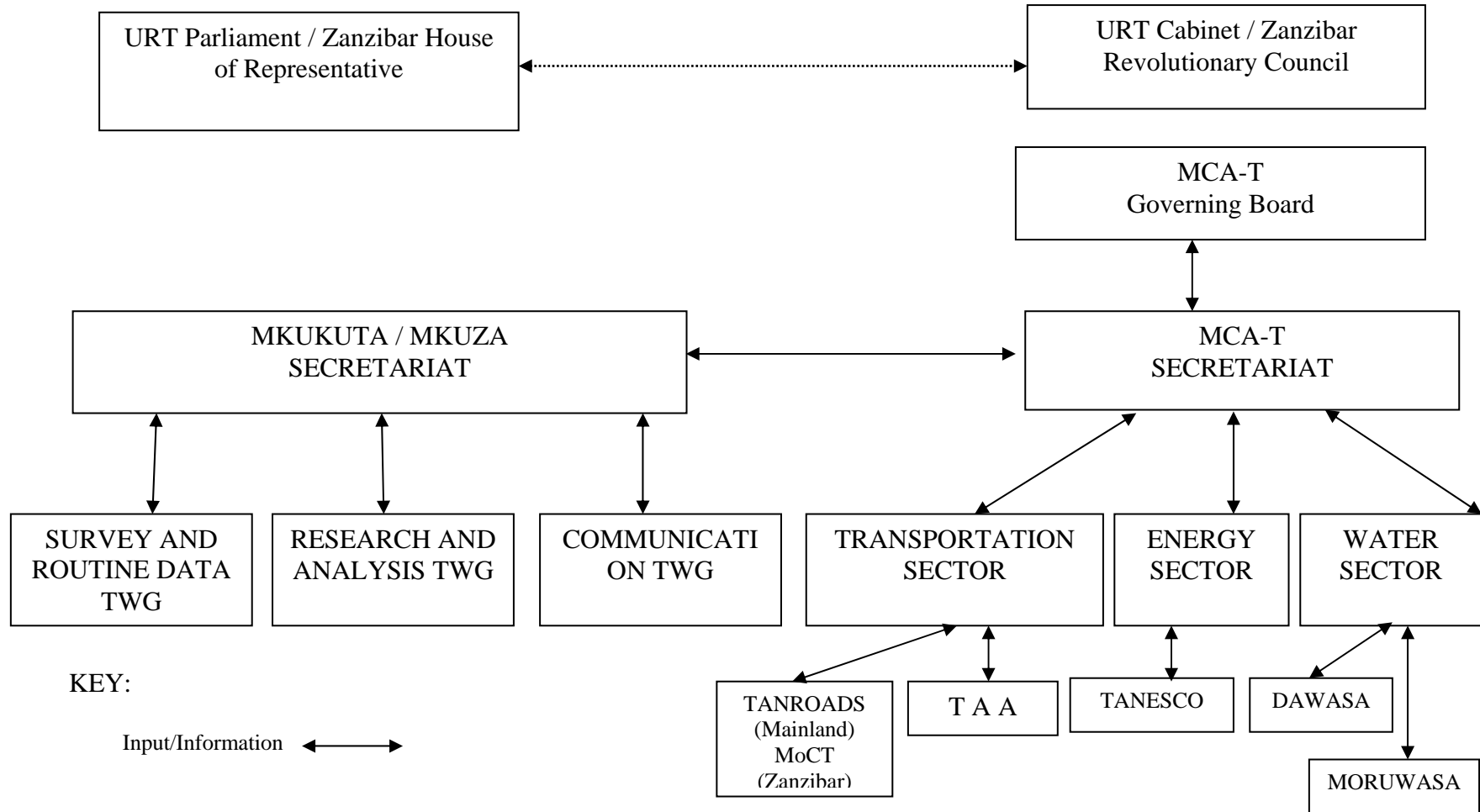
Monitoring and Evaluation of the program will be based on a partnership model of the implementing entities (TANROADS (Mainland), Ministry of Communication and Transport (Zanzibar), TAA, under transport sector; TANESCO⁷ for energy sector, and DAWASA/DAWASCO and MORUWASA under water sector) linked to MCA-Tanzania. Environment, which is a cross cutting issue will be monitored by NEMC (Mainland) and ZDoE (Zanzibar) This is a means of enhancing commitment to a broad stakeholder engagement in monitoring processes.

The institutional arrangement for monitoring of MCA-Tanzania activities is therefore based on the proposed synergy between the MCA-Tanzania secretariat and the existing national MKUKUTA/MKUZA monitoring system. Efforts will be done to synchronize MCA-T data collection with these national monitoring systems. The MCA-T secretariat provides and receives information from MKUKUTA/MKUZA secretariat and report to the MCA–T Governing Board.

Since the existing system tracks changes in growth and poverty reduction outcomes on an annual basis, and on periodic basis through the routine data system and multi-year survey plan, the MCA-Tanzania program management unit will focus on input and output monitoring at one level, and link with MKUKUTA/MKUZA poverty monitoring system (PMS) on measuring the outcomes. Input-Output reporting will be undertaken on a quarterly basis while outcome reporting will be done on medium term. The figure below indicates institutional arrangement for monitoring:

⁷ Zanzibar Electrical Company (ZECO) will feature as a collaborator.

FIGURE 2: MCA-T FRAMEWORK FOR MONITORING AND EVALUATION



8 THE M&E WORK PLAN

The monitoring and evaluation work plan for the whole duration of the project is in Table 12. Note that all the M&E preparatory works, including designing of indicator tracking strategy, conducting baseline survey, preparation of M&E manual and capacity building of stakeholders are to be carried out at the inception of the program.

Table 12: The M&E Work Plan

TASK/YEARS	2007/08		2008/09				2009/10				2010/11				2011/12				2012/13				
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
M&E Plan																							
Finalize M&E Plan		x	x	x	x																		
Submit M&E Plan to MCC					x																		
M&E Plan approved by MCC					x																		
Publicize the M&E Plan						x	x	x	x	x													
Review and Approval of M&E Plan							x	x															
Designing of Indicator Tracking Strategy																							
M&E Manual Development					x	x	x	x															
Capacity Building training on M&E								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Stakeholder Annual Review											x				x								
Baseline and Periodic Data Collection																							
Data Gathering – Pemba Roads					x	x									x	x							
Data Gathering – Transport			x	x	x	x	x												x	x	x	x	
Data Gathering –Energy											x	x	x	x					x	x	x	x	x
Data Gathering – Water											x	x	x	x					x	x	x	x	x
Data Quality Review																x	x					x	x
Quarterly Progress Reports					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Annual Performance Reports						x				x					x				x				x
Beneficiary Assessment/Feedback																				x	x	x	x
Program Evaluation																							
Evaluation of Energy Project																				x	x	x	x
Evaluation of Water Project																				x	x	x	x
Evaluation of Transport Project																				x	x	x	x
Evaluation Energy Project																				x	x	x	x
Case Studies/Surveys																							
Traffic Count Survey																				x	x	x	
Management Information System for M&E																							
MIS data Base design and installation									x	x													
Capacity Building of Local institutions																							
Support National Bureau of Statistics																x						x	

9 M&E BUDGET

The budget for M&E is based on the activities outlined in the work plan. Resources will be required to facilitate routine monitoring, data collection, data quality review, beneficiary assessment, evaluation, communication, and building the capacity of stakeholders. Specific resource requirements are as follows:

TABLE 11: COMPACT BUDGET FOR M&E (US\$)

Item/years	2008/09	2009/10	2010/11	2011/12	2012/13	TOTAL
I. M&E Studies						
1.1 Data gathering	900,000	592,000	250,000	1,000,000	2,420,000	5,162,000
1.2 Other	10,000	352,500	17,500	0	2,683,500	3,063,500
2. Technical assistance						
2.1 Support to National Bureau of Statistics				768,000	768,000	1,536,000
2.2 Other	154,500	42,000	22,000	10,000	10,000	238,500
Total	1,064,500	986,500	289,500	1,778,000	5,881,500	10,000,000

ANNEXES

ANNEX 1: INDICATOR DEFINITION TABLES

Compact Goal Indicators

Program Goal	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
Economic Growth and poverty reduction through investments in Transport, Energy and Water Infrastructure	Regional GDP	Regional GDP increase due to Transport Sector Project ⁸	US\$ million	National Bureau of Statistics-Mainland Office of Chief Government Statistician - Zanzibar	Household Budget Survey	TBD
	Regional GDP	Regional GDP increase due to Energy Sector Project ¹²	US\$ million	National Bureau of Statistics- Mainland Office of Chief Government Statistician - Zanzibar	Household Budget Survey	TBD
	Regional GDP	Regional GDP increase due to Water Sector Project ¹²	US\$ million	National Bureau of Statistics- Mainland	Household Budget Survey	TBD

⁸ Baseline GDP is 2005 figure updated to 2008 using 6.4% annual growth

Indicator Definition Tables continued

Transport Sector Project

Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
Increased Cash crop Revenue	Cash Crop Revenue	Tons of crops sold (in price per ton in zone of influence road)	US\$ million	Firm contracted by MCA-Tanzania	Surveys	TBD
Increased Aggregate spending by visitors to Mafia Island	Aggregate Visitor Spending ⁹	Sum of spending by all visitors to Mafia Island	US\$ million	Tanzania Airport Authority (TAA)	Review of Administration Data	Before and after construction
Outcome						
Reduced vehicle operating costs and travel times	International Roughness Index (IRI)	Weighted Index to measure road roughness (correlated with transport costs) disaggregated by road segment	m/km	Tanzania National Roads Agency (TANROADS)/Ministry of Communications and Transport (MoCT)	Pre and post-project measurement of road roughness for all roads upgraded	Before and after construction
Increased Traffic Volume	Average annual daily traffic (AADT)	Average number of vehicles on upgraded roads disaggregated by road segment	Number of vehicles	Tanzania National Roads Agency (TANROADS) Ministry of Communications and Transport (MoCT)/Consultant	Pre and post-project measurement of road roughness for all roads upgraded	Before and after construction

⁹ Reporting will be disaggregated by visitor category: business, leisure and holiday (package and non-package), visiting friends and relatives, government and others

Transport Sector Project

Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
Increased air passenger traffic to Mafia Island	Passenger arrival ¹⁰	Average number of passengers arrival at Mafia Island airport	Number of Passengers	Tanzania Airport Authority (TAA)	Review of Administrative Data	Before and after construction
Outputs						
Kilometers of Mainland and Pemba Roads Rehabilitated	Kilometres of roads upgraded	Kilometers of road upgraded disaggregated by road segment	Km	Tanzania National Roads Agency (TANROADS) Ministry of Communications and Transport (MoCT)	Administrative, project implementation documents	Before and after construction
Roads Maintained	Road Maintenance expenditure	Amount spent on maintenance the previous fiscal year/Amount budgeted for maintenance for the previous year disaggregated by mainland and Zanzibar	Percent	Tanzania National Roads Agency (TANROADS) Ministry of Communications and Transport (MoCT)	Administrative, project implementation documents	Annually
Mafia Island runway upgraded	Percentage of upgrade completed	Percentage of the Mafia Island Airport runway upgrading completed	Percentage	Tanzania Airport Authority (TAA)	Administrative, project implementation documents	Before and after construction

¹⁰ Reporting will be disaggregated by visitor category: business, leisure and holiday (package and non-package), visiting friends and relatives, government and others.

Indicator Definition Tables continued

Energy Sector Project

Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
Increased value added to businesses in Kigoma T&D target areas and Unguja Island	Value added	Profits plus wages of enterprises, disaggregated by Kigoma, T&D target regions and Unguja Island	US\$	Survey Firm contracted by MCA-Tanzania	Surveys	TBD
Outcome						
Increased quantity of electricity sold	Quantity of Electricity sold	Amount of electricity sold, to be disaggregated by target regions ¹¹	MWh/year	Survey Firm/Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly
Increased number of power customers	Current Power Customers	Number of current connections, disaggregated by target regions and customer types ¹²	Number	Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly
Better quality of power	Power quality	Average number of hours per month that voltage fluctuates past acceptable range for sub-stations in each target region	Hours per month	Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly
More reliable power	Power reliability:	Total number of power interruptions (outages) in	Number of interruptions	Tanzania Electric Supply Company (TANESCO) &	Administrative Data	Monthly

¹¹ Target regions include: (i) Kigoma region (which includes towns of Kigoma, Kasulu and Uvinza); (ii) Mwanza, Tanga, Morogoro, Dodoma, Iringa, Mbeya for the Distribution Rehabilitation and Extension Activity; and (iii) Unguja Island.

¹² Customers for Malagarasi Hydropower and Kigoma Distribution Activity, Distribution Rehabilitation and Extension Activity, Zanzibar Interconnector Activity. Customer types will be disaggregated by tariff category (D1, T1, T2, and T3,)

Energy Sector Project

Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
	Frequency of Outages	each region divided by number of customers for each region	(outages) /number of customers	Zanzibar Electricity Corporation (ZECO)		
	Power Reliability: Duration of Outages	Sum of duration of power outages for each region divided by number of customers for each region	(Hours/number of customers)	Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly
Outputs						
Additional MWh/day of energy generated	Energy generation	Daily energy generated at the power plant and transmitted to the grid (Kigoma)	MWh/day	Tanzania Electric Supply Company (TANESCO)	Administrative Data	Before and After construction
Increased MVA of transmission capacity	Transmission and distribution substation capacity	For each region, the sum of the transmission and distribution transformer capacity	MVA	Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly
Improved collection efficiency	Collection efficiency	Cash (Revenue from electricity bills) collected that month/previous month's billing	Percentage	Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly
Decreases technical and non-technical losses	Technical and non-technical losses	(kWh received by substation – kWh billed)/ (kWh received by substation)	Percent	Tanzania Electric Supply Company (TANESCO) & Zanzibar Electricity Corporation (ZECO)	Administrative Data	Monthly

Indicator Definition Tables continued

Water Sector Project						
Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
Investment in physical capital	Value of household assets	Total value of households assets disaggregated by Dar es Salaam and Morogoro	US\$	Survey Firm/ DAWASA/DAWASCO & MORUWASA ¹³	Household Survey	Pre and post project construction
Investment in human capital	Average years of education completed	Average years of education completed disaggregated by Dar es Salaam and Morogoro	Years	Survey Firm	Household Survey	Pre and post project construction
Reduced prevalence of water related diseases	Prevalence of diarrhoea	Total number of diarrhoea cases disaggregated by Dar es Salaam and Morogoro	Number of Diarrhea cases	Survey Firm/Ministry of Health and Social Welfare	Surveys/Administrative Health Data	TBD
	Prevalence of cholera	Total number of cholera cases disaggregated by Dar es Salaam and Morogoro	Number of Cholera cases	Survey Firm/Ministry of Health and Social Welfare	Surveys/Administrative Health Data	TBD
Outcome						
Increased number of households using improved water sources	Number of domestic customers	Number of domestic customers using home water pipes (Dar-es-Salaam/Morogoro)	Number of Domestic Customers	Survey Firm/ DAWASA/DAWASCO, MORUWASA	Surveys/Administrative Data	Monthly
Increased number of businesses using improved water source	Number of non-domestic customers (commercial and institutional)	Number of non-domestic customers (commercial and institutional) using improved source of water (Dar-es-Salaam and Morogoro)	Number of Non-domestic Customers	Survey Firm, DAWASA/DAWASCO, MORUWASA	Surveys/Administrative Data	Monthly

¹³ Baselines and targets will be established no later than the last quarter before construction begins

Water Sector Project

Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
Increased per capita water consumption	Volume of individual water consumption (domestic metered customers)	Daily per capita water consumption (metered) disaggregated by Dar-es-Salaam and Morogoro.	Liters/ capita/day	Survey Firm, DAWASA/DAWASCO, MORUWASA	Surveys	Annually
	Volume of individual water consumption (domestic non-metered customers)	Daily per capita water consumption (non-metered) disaggregated by Dar-es-Salaam and Morogoro.	Liters/ capita/day	Survey Firm, DAWASA/DAWASCO, MORUWASA	Surveys	Annually
Outputs						
Increased Water supplied	Volume of water produced	Daily volume of water produced by treatment facility	million litres per day (mld)	DAWASA/DAWASCO, MORUWASA	Administrative data, project implementation documents	Monthly
Decreased non-revenue water	Volume of non-revenue water	Volume of piped water minus volume of water billed divided by volume of water billed disaggregated by Dar es Salaam and Morogoro	Percent	DAWASA/DAWASCO, MORUWASA	Administrative data, project implementation documents	Monthly
Improved operations and maintenance cost recovery ratio	Operations and maintenance cost	Total revenue from operations/ Routine and periodic operations and maintenance	Percent	DAWASA/DAWASCO, MORUWASA	Administrative data, project implementation documents	Monthly

Water Sector Project

Objective	Indicator	Definition of Indicator	Units	Source/Responsible Entity	Methodology	Frequency of Data Collection
	Recovery Ratio	expenses disaggregated by Dar es Salaam and Morogoro				



ANNEX 2: INDICATORS, BASELINES AND TARGETS

Annex 2: Indicators, baselines and targets

							Annual targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Target	Target	Target	Target	Target
Transport Sector	Mainland Trunk Roads	Goal	Regional GDP increase due to transport sector: Mbeya and Rukwa Regions (Tunduma Sumbawanga Road)	US\$ millions	Level	494.2					639.4
Transport Sector	Mainland Trunk Roads	Goal	Regional GDP increase due to transport sector: Tanga Regions (Tanga - Horohoro Road)	US\$ millions	Level	699					898.3
Transport Sector	Mainland Trunk Roads	Goal	Regional GDP increase due to transport sector: Ruvuma Region (Namtumbo Songea and Peramiho Mbinga Road)	US\$ millions	Level	1,275.90					1,645.30
Transport Sector	Zanzibar Rural Roads	Goal	Regional GDP increase due to transport sector: Zanzibar	US\$ millions	Level	390.3					501.3
Transport Sector	Mafia Island Airport	Goal	Regional GDP increase due to transport sector: Pwani Region (Mafia Airport)	US\$ millions	Level	235.3					302.3
Transport Sector	Mainland Trunk Roads	Objective	Cash Crop Revenue (Tons of crops sold in price per ton in zone of influence road): Tunduma-Sumbawanga	US\$ millions	Level	58.2					67.8
Transport Sector	Mainland Trunk Roads	Objective	Cash Crop Revenue (Tons of crops sold in price per ton in zone of influence road): Tanga-Horohoro)	US\$ millions	Level	1.35					1.48
Transport Sector	Mainland Trunk Roads	Objective	Cash Crop Revenue (Tons of crops sold in price per ton in zone of influence road): Nambumbo-Songea and Peramiho-Mbinga	US\$ millions	Level	41					50.7
Transport Sector	Zanzibar Rural Roads	Objective	Cash Crop Revenue: Pemba, Zanzibar	US\$ millions	Level	8					8.5
Transport Sector	Mafia Island Airport	Objective	Aggregate Visitor Spending	US\$ millions	Level	3.2					4.2
Transport Sector	Mainland Trunk Roads	Outcome	International Roughness Index: Tunduma Sumbawanga	m/km	Level	14.3					2.5
Transport Sector	Mainland Trunk Roads	Outcome	International Roughness Index: Tanga Horohoro	m/km	Level	14.5					2.5
Transport Sector	Mainland Trunk Roads	Outcome	International roughness Index: Namtumbo -Songea	m/km	Level	16					2.5
Transport Sector	Mainland Trunk Roads	Outcome	International roughness Index: Peramiho Mbinga	m/km	Level	16					2.5
Transport Sector	Zanzibar Rural Roads	Outcome	International Roughness Index: Zanzibar (Pemba) Rural Roads	m/km	Level	15					4

							Annual targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Target	Target	Target	Target	Target
Transport Sector	Mainland Trunk Roads	Outcome	Average annual daily traffic (AADT): Tunduma Sumbawanga	vehicles	Level	470					810
Transport Sector	Mainland Trunk Roads	Outcome	Average annual daily traffic (AADT): Tanga-Horohoro	vehicles	Level	530					915
Transport Sector	Mainland Trunk Roads	Outcome	Average annual daily traffic (AADT): Namtumbo Songea	vehicles	Level	230					390
Transport Sector	Mainland Trunk Roads	Outcome	Average annual daily traffic (AADT): Peramiho Mbinga	vehicles	Level	110					180
Transport Sector	Zanzibar Rural Roads	Outcome	Average annual daily traffic (AADT): Zanzibar Rural Roads	vehicles	Level	26					49
Transport Sector	Mafia Island Airport	Outcome	Passenger arrival	Number of passengers	Level	12000					16000
Transport Sector	Mainland Trunk Roads	Output	Kilometers upgraded: Tunduma Sumbawanga	km.	Incremental	0					224.9
Transport Sector	Mainland Trunk Roads	Output	Kilometers upgraded: Tanga - Horohoro	km.	Incremental	0					65.7
Transport Sector	Mainland Trunk Roads	Output	Kilometers upgraded: Namtumbo - Songea	km.	Incremental	0					61
Transport Sector	Mainland Trunk Roads	Output	Kilometers upgraded: Peramiho - Mbinga	km.	Incremental	0					78
Transport Sector	Zanzibar Rural Roads	Output	Kilometers upgraded: Zanzibar Pemba roads	km.	Incremental	0					34.7
Transport Sector	Road Maintenance	Output	Road maintenance expenditures (Mainland Trunk Road)	Percentage	Level	79		82	86	90	95
Transport Sector	Road Maintenance	Output	Road maintenance expenditures (Zanzibar)	Percentage	Level	75		80	85	90	95
Transport Sector	Mafia Island Airport	Output	Percentage of upgrade completed	Percentage	Incremental	0					100%
Transport Sector	Mainland Trunk Roads	Process milestone	Design contract signed – Tunduma Sumbawanga	Date	Date	0	27-Mar-09				
Transport Sector	Mainland Trunk Roads	Process milestone	Value of design contract – Tunduma Sumbawanga	US\$	Cumulative	0					

							Annual targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Target	Target	Target	Target	Target
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Design contract Tunduma Sumbawanga	Percentage	Cumulative	0	40	100			100
Transport Sector	Mainland Trunk Roads	Process milestone	Design contract signed Mtwara	Date	Date	0	31-Mar-09				
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Design contract Mtwara	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Design contract Mtwara	Percentage	Cumulative	0	17	100			100%
Transport Sector	Mainland Trunk Roads	Process milestone	Supervision contract signed Tanga Horohoro	Date	Date	0	9-Sep-09				
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Supervision contract Tanga Horohoro	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Supervision contract Tanga Horohoro	Percentage	Cumulative	0	10	40	80	95	100
Transport Sector	Mainland Trunk Roads	Process milestone	Supervision contract signed Tunduma Sumbawanga	Date	Date	0	30-Sep-09				
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Supervision contract Tunduma Sumbawanga	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Supervision contract Tunduma Sumbawanga	Percentage	Cumulative	0	10	62	91	96	100
Transport Sector	Mainland Trunk Roads	Process milestone	Supervision contract signed Mtwara	Date	Date	0		15-Oct-09			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Supervision contract Mtwara	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Supervision contract Mtwara	Percentage	Cumulative	0		67	95	100	100
Transport Sector	Mainland Trunk Roads	Process milestone	Construction contract signed Tanga Horohoro	Date	Date	0		15-Jan-10			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Construction contract Tanga Horohoro	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Construction contract Tanga Horohoro	Percentage	Cumulative	0		17	60	90	100

							Annual targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Target	Target	Target	Target	Target
Transport Sector	Mainland Trunk Roads	Process milestone	Construction contract signed Tunduma Sumbawanga (Tunduma Ikana)	Date	Date	0		1-Apr-10			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Construction contract Tunduma Sumbawanga (Tunduma Ikana)	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Construction contract Tunduma Sumbawanga (Tunduma Ikana)	Percentage	Cumulative	0		10	65	90	100
Transport Sector	Mainland Trunk Roads	Process milestone	Construction contract signed Tunduma Sumbawanga (Ikana Laela)	Date	Date	0		1-Apr-10			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Construction contract Tunduma Sumbawanga (Ikana Laela)	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Construction contract Tunduma Sumbawanga (Ikana Laela)	Percentage	Cumulative	0		10	65	90	100
Transport Sector	Mainland Trunk Roads	Process milestone	Construction contract signed Tunduma Sumbawanga (Laela Sumbawanga)	Date	Date	0		15-Mar-10			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Construction contract Tunduma Sumbawanga (Laela Sumbawanga)	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Construction contract Tunduma Sumbawanga (Laela Sumbawanga)	Percentage	Cumulative	0		17	50	90	100
Transport Sector	Mainland Trunk Roads	Process milestone	Construction contract signed Mtwara (Peramiho Mbinga)	Date	Date	0		1-Apr-10			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Construction contract Mtwara (Peramiho Mbinga)	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Construction contract Mtwara (Peramiho Mbinga)	Percentage	Cumulative	0		10	47	90	100
Transport Sector	Mainland Trunk Roads	Process milestone	Construction contract signed Mtwara (Songea Namtumbo)	Date	Date	0		1-Apr-10			
Transport Sector	Mainland Trunk Roads	Process milestone	Value of Construction contract Mtwara (Songea Namtumbo)	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads	Process milestone	Percentage disbursed Construction contract Mtwara (Songea Namtumbo)	Percentage	Cumulative	0		10	47	90	100
Transport Sector	Mainland Trunk Roads	Process milestone	EIA Certificate Issued	Number	Cumulative	0	1	5			5

							Annual targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Target	Target	Target	Target	Target
Transport Sector	Mainland Trunk Roads	Process milestone	RAPs approved	Number	Cumulative	0	1	5			5
Transport Sector	Mainland Trunk Roads	Process milestone	Wildlife Management Area MoU signed between MCA-T and USAID	Date	Date	0	8-Apr-09				
Transport Sector	Zanzibar Rural Roads	Process milestone	Contract signed of Feasibility study, EIA, resettlement scoping and ERRs contract, plus options	Date	Date	0	24-Sep-09				
Transport Sector	Zanzibar Rural Roads	Process milestone	Value of Feasibility study, EIA, resettlement scoping and ERRs contract, plus options	US\$	Cumulative	0					
Transport Sector	Zanzibar Rural Roads	Process milestone	Percentage disbursed on Feasibility study, EIA, resettlement scoping and ERRs contract	Percentage	Cumulative	0		100			100
Transport Sector	Zanzibar Rural Roads	Process milestone	Percentage disbursed on Design, RAPs and bid package option of contract	Percentage	Cumulative	0		100			100
Transport Sector	Zanzibar Rural Roads	Process milestone	Percentage disbursed on Construction Supervision option of contract	Percentage	Cumulative	0			55	100	100
Transport Sector	Zanzibar Rural Roads	Process milestone	Contract signed for construction	Date	Date	0		30-Nov-10			
Transport Sector	Zanzibar Rural Roads	Process milestone	Value of construction contract	US\$	Cumulative	0					
Transport Sector	Zanzibar Rural Roads	Process milestone	Percentage disbursed for construction contract	Percentage	Cumulative	0			60	100	100
Transport Sector	Mafia Island airport	Process milestone	EIA Certificate Issued	Number	Cumulative	0	1				1
Transport Sector	Mafia Island Airport	Process milestone	Design and Construction Supervision contract signed	Date	Date	0		15-May-10			
Transport Sector	Mafia Island Airport	Process milestone	Value of Design and Construction Supervision Contract	US\$	Cumulative	0					
Transport Sector	Mafia Island Airport	Process milestone	Percentage Disbursement on Design and Construction Supervision Contract	Percent	Cumulative	0		15	32	58	100
Transport Sector	Mafia Island Airport	Process milestone	Construction contract signed	Date	Date	0			15-May-11		
Transport Sector	Mafia Island Airport	Process milestone	Construction contract signed	US\$	Cumulative	0					

							Annual targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Target	Target	Target	Target	Target
Transport Sector	Mafia Island Airport	Process milestone	Percent disbursed on construction contract	Percent	Cumulative	0			20	69	100
Transport Sector	Mainland Trunk Roads and Zanzibar Rural Roads	Process milestone	Amount disbursed on supervision and design and feasibility studies	US\$	Cumulative	0					
Transport Sector	Mainland Trunk Roads and Zanzibar Rural Roads	Process milestone	Amount disbursed on construction	US\$	Cumulative	0					

Annex 2: Indicators, baselines and targets

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector		Goal	Regional GDP: Kigoma	US\$ million	Level	389.9					502.3
Energy Sector		Goal	Regional GDP: Tanga	US\$ million	Level	699					896.8
Energy Sector		Goal	Regional GDP: Dodoma	US\$ million	Level	364					466.9
Energy Sector		Goal	Regional GDP: Morogoro	US\$ million	Level	654.4					839.6
Energy Sector		Goal	Regional GDP: Iringa	US\$ million	Level	657.7					843.7
Energy Sector		Goal	Regional GDP: Mwanza	US\$ million	Level	1021.3					1,310.20
Energy Sector		Goal	Regional GDP: Mbeya	US\$ million	Level	860.9					1,104.50
Energy Sector		Goal	Regional GDP: Zanzibar Island	US\$ million	Level	390.3					500.4
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Objective	Value added- Kigoma	US\$	Level	TBD					TBD
Energy Sector	Distribution Rehabilitation and extension activity	Objective	Value added: Morogoro	US\$	Level	TBD					TBD
Energy Sector	Distribution Rehabilitation and extension activity	Objective	Value added:Tanga	US\$	Level	TBD					TBD
Energy Sector	Distribution Rehabilitation and extension activity	Objective	Value added:Mbeya	US\$	Level	TBD					TBD
Energy Sector	Distribution Rehabilitation and extension activity	Objective	Value added:Iringa	US\$	Level	TBD					TBD
Energy Sector	Distribution Rehabilitation and extension activity	Objective	Value added:Dodoma	US\$	Level	TBD					TBD
Energy Sector	Distribution Rehabilitation and extension activity	Objective	Value added:Mwanza	US\$	Level	TBD					TBD
Energy Sector	Zanzibar Interconnector activity	Objective	Value added: Zanzibar	US\$	Level	TBD					TBD
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Quantity of Electricity sold: Kigoma	MWh/year	Cumulative	9,923.82					12,522 additional MWh/year due to project
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Quantity of Electricity sold: Morogoro	MWh/year	Cumulative	119,170.25					27,450 additional MWh/year due to project
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Quantity of Electricity sold:Tanga	MWh/year	Cumulative	165,193.62					12,180 additional MWh/year due to project

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Quantity of Electricity sold: Mbeya	MWh/year	Cumulative	109,997.86					10,730 additional MWh/year due to project
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Quantity of Electricity sold: Iringa	MWh/year	Cumulative	79,260.36					10,210 additional MWh/year due to project
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Quantity of Electricity sold: Dodoma	MWh/year	Cumulative	57,992.69					11,390 additional MWh/year due to project
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Quantity of Electricity sold: Mwanza	MWh/year	Cumulative	150,446.82					33,250 additional MWh/year due to project
Energy Sector	Zanzibar Interconnector activity	Outcome	Quantity of Electricity sold: Zanzibar	MWh/year	Cumulative	TBD					197,600 additional MWh/year due to project
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Current Power Customers: Kigoma D1	Number	Cumulative						2500
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Current Power Customers: Kigoma T1	Number	Cumulative						
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Current Power Customers: Kigoma T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Morogoro D1	Number	Cumulative						10060
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Morogoro T1	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Morogoro T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Tanga D1	Number	Cumulative						4660
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Tanga T1	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Tanga T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Mbeya D1	Number	Cumulative						2450

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Mbeya T1	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	New Power Customers: Mbeya T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Iringa D1	Number	Cumulative						2470
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Iringa T1	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Iringa T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Dodoma D1	Number	Cumulative						3730
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Dodoma T1	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Dodoma T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Mwanza D1	Number	Cumulative						11440
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Mwanza T1	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Mwanza T2 & T3	Number	Cumulative						
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Current Power Customers: Z'bar D1	Number	Cumulative						4,300
Energy Sector	Zanzibar Interconnector activity	Outcome	Current Power Customers: Zanzibar T1	Number	Cumulative						
Energy Sector	Zanzibar Interconnector activity	Outcome	Current Power Customers: Zanzibar T2 & T3	Number	Cumulative						
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Power quality: Kigoma	Hours/month	Level						2% improvement from baseline
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power quality: Morogoro	Hours/month	Level						2% improvement from baseline
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power quality: Tanga	Hours/month	Level						2% improvement from baseline

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power quality: Mbeya	Hours/month	Level						2% improvement from baseline
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power quality: Iringa	Hours/month	Level						2% improvement from baseline
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power quality: Dodoma	Hours/month	Level						2% improvement from baseline
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power quality: Mwanza	Hours/month	Level						2% improvement from baseline
Energy Sector	Zanzibar Interconnector activity	Outcome	Power quality: Zanzibar	Hours/month	Level						2% improvement from baseline
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Power Reliability: Frequency of Outages (Kigoma)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Frequency of Outages (Morogoro)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Frequency of Outages (Tanga)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Frequency of Outages (Mbeya)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Frequency of Outages (Iringa)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Frequency of Outages (Dodoma)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Frequency of Outages (Mwanza)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Zanzibar Interconnector activity	Outcome	Power Reliability: Frequency of Outages (Zanzibar)	Interruptions (Outages)/Customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Outcome	Power Reliability: Duration of Power Outages (Kigoma)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Duration of Power Outages (Morogoro)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Duration of Power Outages (Tanga)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Duration of Power Outages (Mbeya)	Hours/customer	Level	TBD					15% fewer than baseline per year

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power reliability: Duration of Power Outages (Iringa)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Duration of Power Outages (Dodoma)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Duration of Power Outages (Mwanza)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Distribution Rehabilitation and extension activity	Outcome	Power Reliability: Duration of Power Outages (Zanzibar)	Hours/customer	Level	TBD					15% fewer than baseline per year
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Output	Energy generation-Kigoma	MWh/day	Incremental	0					49
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Output	Transmission and distribution sub-station capacity: Kigoma	MVA	Cumulative	0					10
Energy Sector	Distribution Rehabilitation and extension activity	Output	Transmission and distribution sub-station capacity:Morogoro	MVA	Cumulative	0					26.3
Energy Sector	Distribution Rehabilitation and extension activity	Output	Transmission and distribution sub-station capacity:Tanga	MVA	Cumulative	0					60
Energy Sector	Distribution Rehabilitation and extension activity	Output	Transmission and distribution sub-station capacity:Mbeya	MVA	Cumulative	0					15
Energy Sector	Distribution Rehabilitation and extension activity	Output	Transmission and distribution sub-station capacity:Iringa	MVA	Cumulative	0					5
Energy Sector	Distribution Rehabilitation and extension activity	Output	Transmission and distribution sub-station capacity:Dodoma	MVA	Cumulative	0					9.8
Energy Sector	Distribution Rehabilitation and extension activity	Output	Transmission and distribution substation capacity:Mwanza	MVA	Cumulative	0					30
Energy Sector	Zanzibar Interconnector activity	Output	Transmission and distribution sub-station capacity: Zanzibar	MVA	Cumulative	0					125
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Output	Collection efficiency (Kigoma)	Percentage	Level	57.05		67	76	86	95
Energy Sector	Distribution Rehabilitation and extension activity	Output	Collection Efficiency (Morogoro)	Percentage	Level	74.96		80	85	90	95
Energy Sector	Distribution Rehabilitation and extension activity	Output	Collection Efficiency (Tanga)	Percentage	Level	59.39		68	77	86	95

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector	Distribution Rehabilitation and extension activity	Output	Collection Efficiency (Mbeya)	Percentage	Level	68.51		75	82	88	95
Energy Sector	Distribution Rehabilitation and extension activity	Output	Collection Efficiency (Iringa)	Percentage	Level	81.97		85	88	92	95
Energy Sector	Distribution Rehabilitation and extension activity	Output	Collection efficiency (Dodoma)	Percentage	Level	83.03		86	89	92	95
Energy Sector	Distribution Rehabilitation and extension activity	Output	Collection Efficiency (Mwanza)	Percentage	Level	92.83		91	93	94	95
Energy Sector	Zanzibar Interconnector activity	Output	Collection Efficiency (Zanzibar)	Percentage	Level	86.55		87	90	93	95
Energy Sector	Malagarasi hydropower and Kigoma distribution activity	Output	Technical and non Technical losses-Kigoma	Percentage	Level	36.98		32	28	23	18
Energy Sector	Distribution Rehabilitation and extension activity	Output	Technical and non technical losses(Morogoro)	Percentage	Level	28.63		26	23	21	18
Energy Sector	Distribution Rehabilitation and extension activity	Output	Technical and non technical losses (Tanga)	Percentage	Level	28.48		26	23	21	18
Energy Sector	Distribution Rehabilitation and extension activity	Output	Technical and non technical losses (Mbeya)	Percentage	Level	21.06		21	20	19	18
Energy Sector	Distribution Rehabilitation and extension activity	Output	Technical and non technical losses (Iringa)	Percentage	Level	19.96		19	19	19	18
Energy Sector	Distribution Rehabilitation and extension activity	Output	Technical and non technical losses(Dodoma)	Percentage	Level	19.96		19	19	19	18
Energy Sector	Distribution Rehabilitation and extension activity	Output	Technical and non technical losses(Mwanza)	Percentage	Level	19.96		19	19	19	18
Energy Sector	Zanzibar Interconnector activity	Output	Technical and non technical losses (Zanzibar)	Percentage	Level	26		23	22	21	20
Energy	Distribution rehabilitation and Extension, Malagarasi hydropower and Kigoma Distribution	Process milestone	Transmission and distribution lines contract signed	Date	Date	0			15-Nov-10		
Energy	Distribution rehabilitation and Extension, Malagarasi hydropower and Kigoma Distribution	Process milestone	Value of transmission and distribution lines contract	US\$	Cumulative	0					

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy	Distribution rehabilitation and Extension, Malagarasi hydropower and Kigoma Distribution	Process milestone	Percentage disbursed on transmission and distribution lines contract	Percentage	Cumulative	0		28	86	100	
Energy Sector	Distribution Rehabilitation and extension activity	Process milestone	RAPs approved	Number	Cumulative	0	7			7	
Energy Sector	Distribution Rehabilitation and extension activity	Process milestone	Environmental and social management plan (ESMP) for network extension approved	Date	Date	0	10-Dec-09				
Energy Sector	Zanzibar interconnector activity, distribution rehabilitation and extension activity	Process milestone	Value of supervision contract	US\$	Cumulative	0					
Energy Sector	Zanzibar interconnector activity, distribution rehabilitation and extension activity	Process milestone	Percentage disbursed on supervision contract	Percentage	Cumulative	0	50	65	100	100	
Energy Sector	Zanzibar interconnector activity, distribution rehabilitation and extension activity	Process milestone	Substation rehabilitation/upgrade contract signed	Date	Date	0	4-Jun-10				
Energy Sector	Zanzibar interconnector activity	Process milestone	Value of substation rehabilitation/upgrade contract	US\$	Cumulative	0					
Energy Sector	Zanzibar interconnector activity	Process milestone	Percentage disbursed on substation rehabilitation/upgrade contract	Percentage	Cumulative	0	15	22	95	100	
Energy Sector	Zanzibar interconnector activity	Process milestone	Cable contract signed	Date	Date	0	15-Apr-10				
Energy Sector	Zanzibar interconnector activity	Process milestone	Value of cable contract	US\$	Cumulative	0					
Energy Sector	Zanzibar interconnector activity	Process milestone	Percentage disbursed on cable contract	Percentage	Cumulative	0	49	49	73	100	
Energy Sector	Zanzibar interconnector activity	Process milestone	Overhead lines contract signed	Date	Date	0	15-May-10				
Energy Sector	Zanzibar interconnector activity,	Process milestone	Value of overhead lines contract	US\$	Cumulative	0					
Energy Sector	Zanzibar interconnector activity,	Process milestone	Percentage disbursed on overhead lines contract	Percentage	Cumulative	0	15	61	95	100	
Energy Sector	Zanzibar interconnector activity,	Process milestone	Certificate for EIA (Zanzibar) issued	Date	Date	0	23-Feb-10				
Energy Sector	Zanzibar interconnector activity,	Process milestone	Certificate for EIA (Mainland) issued	Date	Date	0	23-Feb-10				
Energy Sector	Zanzibar interconnector activity,	Process milestone	RAP approved (Zanzibar)	Number	Cumulative	0	1			1	

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Energy Sector	Zanzibar interconnector activity	Process milestone	RAP approved (Mainland)	Cumulative	Cumulative	0		1			1

Annex 2: Indicators, baselines and targets

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Annual Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Goal	Regional GDP (Dar es Salaam)	US\$ million	Level	1,937.60					2343.2
Water Sector	Morogoro Water Supply	Goal	Regional GDP (Morogoro)	US\$ million	Level	578.1					741.01
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Objective	Value of household assets (Dar es Salaam)	US\$	Level	TBD					TBD
	Morogoro Water Supply	Objective	Value of household assets (Morogoro)	US\$	Level	TBD					TBD
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Objective	Average years of education completed (Dar es Salaam)	Years	Level	TBD					TBD
Water Sector	Morogoro Water Supply	Objective	Average years of education completed (Morogoro)	Years	Level	TBD					TBD
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Objective	Prevalence of diarrhoea (Dar es Salaam)	Diarrhea cases	Level	TBD					TBD
Water Sector	Morogoro Water Supply	Objective	Prevalence of diarrhoea (Morogoro)	Diarrhoea cases	Level	TBD					TBD
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Objective	Prevalence of cholera (Dar es Salaam)	Cholera cases	Level	TBD					TBD
Water Sector	Morogoro Water Supply	Objective	Prevalence of cholera (Morogoro)	Cholera cases	Level	TBD					TBD
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Outcome	Number of domestic customers (Dar es Salaam)	Domestic Customers	Cumulative	TBD					TBD
Water Sector	Morogoro Water Supply	Outcome	Number of domestic customers (Morogoro)	Domestic Customers	Cumulative						TBD
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Outcome	Number of Non-domestic customers (commercial and institutional) (Dar es Salaam)	commercial and institutional customers	Cumulative	TBD					TBD
Water Sector	Morogoro Water Supply	Outcome	Number of Non-domestic customers (commercial and institutional) customers (Morogoro)	commercial and institutional customers	Cumulative	TBD					TBD
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Outcome	Volume of individual water consumption (Domestic metered customers -Dar es Salaam)	Litres/capita/ day	Level	TBD					In-home:150
Water Sector	Morogoro Water Supply	Outcome	Volume of individual water consumption (Domestic metered customers -Morogoro)	Litres/capita/ day	Level	TBD					In-home:150
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Outcome	Volume of individual water consumption (Domestic non-metered customers - Dar es Salaam)	Litres/capita/ day	Level	TBD					In-home:150

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Annual Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Water Sector	Morogoro Water Supply	Outcome	Volume of individual water consumption (Domestic non-metered customers –Morogoro)	Litres/capita/ day	Level	TBD					In-home:150
Water Sector	Lower Ruvu Plan Expansion	Output	Volume of water produced (Lower Ruvu)	Million litres per day	Level	180					270 (90 additional MLD due to project)
Water Sector	Morogoro Water Supply	Output	Volume of water produced (Morogoro)	Million litres per day	Level	18					33 (15 additional MLD due to project)
Water Sector	Non-Revenue Water	Output	Volume of non-revenue water (Dar es Salaam)	Percent	Level	68					56
Water Sector	Morogoro Water Supply	Output	Volume of non-revenue water (Morogoro)	Percent	Level	40					32
Water Sector	Lower Ruvu Plan Expansion and Non-Revenue Water	Output	Operations and maintenance cost recovery ratio (Dar es Salaam)	Percent	Level	108		118	133	146	151
Water Sector	Morogoro Water Supply	Output	Operations and maintenance cost recovery ratio (Morogoro)	Percent	Level	100.34		105	109	114	115
Water Sector	Lower Ruvu Plan Expansion	Process milestone	EIA certificate issued	Date	Date	0		8 Jan 2010			
Water Sector	Morogoro Water Supply	Process milestone	EIA certificate issued	Date	Date	0		8 Jan 2010			
Water Sector	Lower Ruvu Plant Expansion and Morogoro Water Supply	Process milestone	Feasibility Design Update contract signed	Date	Date	0	30-May-09				
Water Sector	Lower Ruvu Plant Expansion and Morogoro Water Supply	Process milestone	Value of Feasibility Design Update	US\$	Cumulative	0					
Water Sector	Lower Ruvu Plant Expansion and Morogoro Water Supply	Process milestone	Percentage disbursed on Feasibility Design Update contract	Percentage	Cumulative	0	38	100			100
Water Sector	Lower Ruvu Plant Expansion	Process milestone	Contract signed for supervision	Date	Date	0			1-Oct-10		
Water Sector	Lower Ruvu Plant Expansion	Process milestone	Value of supervision contract	US\$	Cumulative	0					
Water Sector	Lower Ruvu Plant Expansion	Process milestone	Percentage disbursed for supervision	Percentage	Cumulative	0			44	79	100
Water Sector	Lower Ruvu Plant Expansion	Process milestone	Contract for construction signed	Date	Date	0			10-Dec-10		
Water Sector	Lower Ruvu Plant Expansion	Process milestone	Value of construction contract	US\$	Cumulative	0					
Water Sector	Lower Ruvu Plant Expansion	Process milestone	Percentage disbursed on construction contract	Percentage	Cumulative	0			48	90	100
Water Sector	Morogoro Water Supply	Process milestone	Contract signed on supervision	Date	Date	0		15-Jul-10			
Water Sector	Morogoro Water Supply	Process milestone	Value of supervision contract	US\$	Cumulative	0					
Water Sector	Morogoro Water Supply	Process milestone	Percentage disbursed on supervision	Percentage	Cumulative	0		10	51	88	100
Water Sector	Morogoro Water Supply	Process milestone	ERR recalculated	Date	Date	0		15-Feb-10			
Water Sector	Morogoro Water Supply	Process milestone	Contract for construction signed	Date	Date	0		15-Jun-10			
Water Sector	Morogoro Water Supply	Process milestone	Value of construction contract	US\$	Cumulative	0					
Water Sector	Morogoro Water Supply	Process milestone	Percent disbursed on construction	Percentage	Cumulative	0		14	62	91	100
Water Sector	Non Revenue Water Part 1	Process milestone	Contract signed on construction	Date	Date	0		11-Mar-10			
Water Sector	Non Revenue Water Part 1	Process milestone	Value of construction contract	US\$	Cumulative	0					

Project	Activity	Indicator Level	Indicator	Unit	Indicator Classification Type	Baseline	Annual Targets				End of Compact Target
							Year 1	Year 2	Year 3	Year 4	Q1 to Q20
							Target	Target	Target	Target	Target
Water Sector	Non Revenue Water Part 1	Process milestone	Percentage disbursed on construction	Percentage	Cumulative	0		11	61	89	100
Water Sector	Non Revenue Water Part 2	Process milestone	Contract signed on baseline study and Technical Specification	Date	Date	0		15-Feb-10			
Water Sector	Non Revenue Water Part 2	Process milestone	Value of baseline study and technical specification study	US\$	Cumulative	0					
Water Sector	Non Revenue Water Part 2	Process milestone	Percentage disbursement on programme co-ordination and technical assistance consultancy	Percentage	Cumulative	0		12	44	88	100
Water Sector	Lower Kivu Plant Expansion, Non Revenue Water, and Morogoro Water Supply	Process milestone	Amount disbursed on supervision and design and feasibility studies	US\$	Cumulative	0					
Water Sector	Lower Kivu Plant Expansion, Non Revenue Water, and Morogoro Water Supply	Process milestone	Amount disbursed on construction/works	US\$	Cumulative	0					

ANNEX 3: DETAILED POTENTIAL IMPACT EVALUATION STRATEGIES

1. Energy Sector Project: Potential Impact Evaluation Strategies

This section outlines the potential strategies for the evaluation. Electricity lines are usually placed near roads or other infrastructure, because governments already own the right of way to the land. Therefore, when possible, the strategies involve controlling for selection bias in the placement of electricity lines.

The evaluation should measure the impact of access to electricity on two types of customers: households and businesses. In addition, there will be two types of beneficiaries per customer type, i) existing connections receiving higher quality energy and ii) newly connected households and businesses.

(i) Impact on existing household and business customers

All of the Activities seek to increase the quality and reliability of electric power to both existing household and business customers. Because all existing customers will benefit simultaneously from the system improvements, an evaluation using random assignment may not be feasible. Therefore MCC is considering evaluating the activities using a before and after comparison of households and businesses currently connected to the electricity grid and track outcomes, such as beneficiary well-being, employment and business revenue. In addition, qualitative analysis, such as case studies, may complement the quantitative, before-and-after analysis.

(ii) Impact on newly connected households and businesses

a. Before and after comparison

The Zanzibar Interconnector Activity seeks to increase electrical power to Zanzibar by laying a submarine transmission cable to Unguja Island and rehabilitating the main substation. Unfortunately, this project component is not amenable to an evaluation using random assignment since all residents of Unguja Island will benefit simultaneously from the submarine transmission line. Therefore, MCC is considering evaluating the project using a before and after comparison. The analysis would measure the impact of better quality and more reliable power on energy consumption and beneficiary welfare taking into account the costs of the individual project activities.

If there are new customers that benefit from the Zanzibar Interconnector Activity, then use of a regression discontinuity design could be possible according to one of the scenarios described below:

b. Regression Discontinuity

The next three strategies apply to both the Malagarasi Hydropower Activity and the Distribution Systems Rehabilitation and Extension (T&D) Activity. Both of these activities include the construction of Transmission line and distribution extension lines to connect households and businesses. Since the final strategy will depend on details of the construction of the approximately 250 distribution line extensions, which are not yet available, three possible strategies are given. All three strategies will use a difference-in-differences approach to estimate the impact of the expansion of distribution lines on newly-connected household and business customers.

- **Regression Discontinuity Scenario 1: Phased construction**

If construction is done in phases, and several small settlements, in addition to the urban areas, will be served, there may be opportunity for a regression discontinuity approach. The strategy would exploit delays in construction of the distribution network to compare communities who receive electricity early in the Compact period to communities who will benefit towards the end of the 5 year period.

- **Regression Discontinuity Scenario 2: Distance from distribution lines**

If expansion of the distribution lines is only possible for a certain distance away from existing lines, then a regression discontinuity approach in conjunction with the difference-in-difference can be used. Suppose TANESCO will only expand x kilometers from existing lines. TANESCO currently has a goal of connecting 100,000 new customers per year using 1-2 km extensions of the existing network. If there was a clearer rule, TANESCO will subsidize only those connections precisely 2 km or fewer away from the existing network, then a regression discontinuity approach can be used comparing households and businesses just beyond the 2km boundary, such as 2500 meters, to those households and business within the 1-2 km zone.

- **Regression Discontinuity Scenario 3: Connection-cost subsidy**

If a connection-cost subsidy program is available, then a randomized design may be used. If subsidies for customer connections are made available, and these subsidies are restricted in number, subsidy beneficiaries could be randomly selected among the pool of eligible customers. For example, if only poor households are eligible but there are still more poor households who want electricity than subsidies available, then beneficiaries could be

randomly selected among the poor. This would also serve as a fair and transparent way of distributing the scarce subsidies. Of course, the subsidy program would not restrict other households, even poor households, from paying for a connection for themselves. Therefore, the randomized provision of the subsidy would serve as an *instrumental variable*¹ for connection up-take.

Since it will not be known if the subsidy can serve as an instrument prior to program implementation, the qualitative judgment of implementers must be relied upon to know whether the subsidy is sufficiently effective at inducing households to get a connection.

Alternatively, if there is a means-tested subsidy available to poor households, the eligibility criteria for the subsidy can create a discontinuity to exploit in the impact evaluation. Regression discontinuity estimation may be employed if eligibility is determined by a clear, quantitative rule. The comparison group is then individuals who have income just slightly higher than the cut-off. These individuals are unlikely to be very different than treatment individuals who are just below the eligibility line, and this comparison can be used to estimate the project's impact. It is essential, however, that the rule is followed closely using objective standards. Data will be collected via household and business/enterprise surveys.

2. Transport Sector Project: Potential Impact Evaluation Strategies

The classic approach in the Roads impact evaluation literature is to use propensity score matching to select observationally similar control households situated in a distant location from treatment roads. Households in close proximity to the treated road are then compared to those households who are well outside the treatment area. A difference-in-difference approach with propensity score matching is recommended. The strategy will seek to address how road upgrading of both trunk roads and rural roads impact household income and consumption levels. The advantage of the approach is that it requires no randomization or change in the selection of roads.

¹ As a short background on instrumental variables, the technique seeks to identify variables that affect program participation but not outcomes (conditional on participation). The causal relationship, in this case between an electricity connection and income growth, is identified through the exogenous variation of the instrument. The program can therefore allow households or businesses to choose to participate while also being able to remove unobservable differences between program participants and non-participants. However, there are two requirements for the instrumental variables strategy to be valid. First, the subsidy must significantly increase the demand for connections. Second, subsidy beneficiaries must be randomly selected. A risk to this strategy is that it relies on the first condition holding, which will not be known until the project is actually implementing. While the subsidy does not have to be the sole factor which leads a potential customer to get a connection, it must be a statistically significant one. Households and businesses in the control group can benefit from the program, as would occur in a demand-driven program, as long as households or businesses in the Treatment group are more likely to participate.

(a) Mainland Trunk Roads

Three mainland trunk roads will be upgraded: Tanga-Horohoro Road, Tunduma-Sumbawanga Road and two components of the Mtwara Corridor. Conducting an evaluation of trunk roads upgrading is particularly difficult since the benefits are usually widespread, including many beneficiaries over a wide geographic space. There is therefore significant difficulty in finding a suitable comparison group as everyone in the area surrounding the road will benefit, as rural roads become connected to an improved trunk road. There is the additional worry that households and businesses which are situated immediately next to a trunk road have self-selected into that location, thereby creating a problem of unobservable characteristics which can not be used in a propensity-score matching technique. There is no realistic way to correct this problem for the evaluation in Tanzania.

Therefore, the evaluation will rely on the classic approach in the Roads impact evaluation literature, which is to use propensity score matching to select observationally similar control villages situated in a distant location from treatment roads. Villages in close proximity to the treated road are then compared to those well outside the treatment area. A difference-in-difference approach with propensity score matching is recommended. The strategy will seek to address how road upgrading of both trunk roads impact community income levels and access to markets. The advantage of the approach is that it requires no randomization or change in the selection of roads.

(b) Zanzibar Rural (Pemba) Roads

All five roads under consideration for MCC funds are rural roads which will likely be upgraded to double bitumen standard. The present condition of these roads varies, but, on average, the roads are in poor condition. The evaluation of the Pemba roads will therefore seek to answer somewhat different questions than the Mainland roads evaluation. While investments in trunk roads are generally accepted to be efficient investments, rural roads are much more controversial (Van de Walle, 2002). The focus of the impact evaluation of the Pemba roads will be on small-scale agricultural output and social benefits.

A more refined approach is available for the evaluation of the Pemba roads than the mainland roads. The Norwegian Agency for Development Cooperation (NORAD) is also actively involved in improving the road transportation network on Pemba Island. They are planning on upgrading and rehabilitating six roads in the southern region. Based on information from NORAD, construction will commence on those six roads in 2011. An evaluation is therefore possible where NORAD roads are used as a control group.

It remains to be assessed whether there are sufficient similarities between villages along the NORAD and MCC roads to make this a successful strategy. The evaluation will be comprised of using difference-in-differences which first compares individuals in communities close to NORAD-funded roads, chosen using a restricted propensity score matching, to individuals close to MCC-funded roads during the interval when MCC has completed construction but prior to NORAD starting work in those particular communities.

The data which should be collected could draw on the 2001 House Hold Budget Survey (HBS) or the National Panel Survey (NPS) questionnaires with some modification and expansion. Having the surveys be comparable to HBS or NPS data will aid in the evaluation; the longer-run outcomes could be estimated using data from the Government of Zanzibar without MCC collecting additional data beyond the Compact period.

The value of rural road improvements is going to stem primarily from improved access to markets and social benefits (Van de Walle, 2002). According to focus group interviews during a site visit to Pemba Island in May 2007, villagers indicated that social benefits included improved access to services, such as medical care, particularly in times of emergency. (The former, events of life changing magnitude where time matters, are likely to be rare incidents). This type of information can be collected through a community-level survey. Similarly, a community-level survey could include information on prices – including transportation costs, agricultural input prices at all nearby markets and agricultural output prices both locally and at nearby markets, and frequency of transportation options. The price information will be one metric to measure improved market access and the benefits to farmers in the area. Prices are expected to respond quickly and therefore can be used for a short-run evaluation of impact. In the case of the comparison with NORAD-funded roads, we would use the roads to be funded by NORAD to give the counterfactual changes in prices that would have occurred in the absence of the road improvements: including seasonal prices changes or fluctuation in the world prices for goods. Community-level surveys are also less expensive than household-level questionnaires and therefore can be collected more frequently and more quickly.

How farmers respond to improved market access due to rural road improvements is an important question. Improvement in both input and output prices is one clear mechanism through which transport sector improvements will lead to higher income. However, there are additional mechanisms. Farmers may choose to make additional investments, such as fertilizer use, which could augment agricultural production. Crop substitution from staple crops into export crops may be an additional response to improved market access through roads. A detailed household module to farmers asking about production and revenue generated by crop could assess farmers' response to the project.

Care should be taken when evaluating the Mzambarauni Karim-Mapofu Road since the presence of the Police camp on this road may make a suitable comparison group difficult to find. An excellent opportunity for evaluation is the Bahanasa-Daya-Mtambwe road. Since the road splits at Daya, the village at the end of one branch to Makongeni may serve as a suitable control group for evaluating the impact of the construction of the Daya to Mtambwe road.

Limitations

There are, however, some significant concerns which may limit the validity of this impact evaluation strategy. As mentioned above, spillover effects may lead to contamination of the comparison group, as everyone may benefit to some extent from the road rehabilitation. Spillover effects may be particularly large for Pemba. If this is the case, the estimates may be a lower bound of the true effect. If the estimate is large, then the concern is a small one since the policy implications would be the same if the true impact was even larger. The risk, however, is that the evaluation finds a small effect. It will be difficult in that case to know how large the downward bias is because of the spillover effect, and this may mitigate the ability to make policy implications based on the evaluation. The second risk is the same as with any difference-in-difference approach with propensity score matching: unobservable characteristics still may differ across treatment and control.

(c) Mafia Island Airport

A rigorous evaluation of the Mafia Island Airport rehabilitation will not be feasible, since a suitable comparison group is not available. Furthermore, it is not possible to draw general conclusions from the upgrading of one airport on a rather unique island. A before and after comparison of the number of tourists, the number of tourist-oriented businesses and their corresponding revenue will provide some insight into the impact of the program. Tourism trends in Tanzania could also be tracked to better understand how tourism is changing on Mafia versus the rest of Tanzania. Furthermore, a short survey given to tourists who arrive on the Island may provide the most information available on how the airport project impacted tourism. In particular, it would be useful to ask tourists the reasons they decided to come to Mafia Island, including infrastructure generally and the airport in particular, in a qualitative, open-ended questionnaire format.

3. Water Sector Project: Potential Impact Evaluation Strategies

(a) Lower Ruvu Plant Expansion Activity

The capacity of the Lower Ruvu water treatment plant will be expanded to significantly increase water supply for the DAWASA area. The project will consist mainly of infrastructure investment, including the treatment system, along with some capacity building for Dar es Salaam Water and Sewerage Authority (DAWASA).

Given that the project will impact the entire DAWASA Supplied Area simultaneously, evaluating the impact of the infrastructure investment will be difficult. The project will increase overall supply within the existing network. This will improve the quality of services for existing customers and may increase demand for getting a connection for households and businesses of existing pipelines. If this is the case, the methodology would be to do a difference-in-difference comparing households and businesses within the 20m area to households and businesses at 25m (or so) before and after treatment plant improvement. It will be critical that the 20m policy is implemented accurately, thereby creating the discontinuity.² While a “fuzzy” regression discontinuity design is possible if the 20m is not strictly implemented, it will be necessary that being less than 20m to an existing pipeline makes it significantly (both statistically and in terms of magnitude) more likely to receive the ‘first time connection fund’ subsidy.

It should be noted that this design will only estimate the effect of having an in-home connection. Given water resale, it is likely that the control group will receive some level of treatment since water will generally become cheaper in Dar and households at 25m from a main line may simply fetch water from a neighbor within the 20m zone. In this dimension, the effect will be a lower bound of the true causal relationship between in-home water connections and health and productivity.

The main risk to this strategy is that the discontinuity is too fuzzy, that is, the 20m rule is not followed with sufficient precision. Second, spillover effects lead to significant “treatment” of control group that we can not precisely estimate a differential effect. If the spillover effect is sufficiently large, we may get either no effect or an effect which is very small. As already mentioned, this estimate would constitute a lower bound. However, it may be difficult to interpret this estimate for policy purposes: a small effect, while a lower bound, will not be informative to policymakers while making tradeoffs between future projects.

² If a business offers to pay for the extension then they would still be in the “control” group.

DAWASA's District Metering Area (DMA) may also provide an additional, indirect, way of evaluating the project. The order in which expansion is done for prioritized areas may create a suitable comparison group. For example, two DMAs, x and y, are considered priorities for expansion and are fairly similar. If x is serviced first, perhaps due to geographic proximity to the existing main line, then y can serve as a comparison group for households and businesses treated in DMA x. However, this will require strong assumptions about the similarity of x and y. If panel data is collected, then the necessary assumption can be relaxed slightly: instead of baseline levels of health and business activity being equal in x and y, it needs to be the case that the growth rate of business activity and changes in health are the same in x and y, in the absence of the program. Baseline data collected prior to the plant expansion work could be used in conjunction with the 2001 HBS to provide better insight as to whether this assumption would hold: if the assumption is satisfied between 2001 and 2007, it is more likely to hold from project implementation until the evaluation.

If neither of these strategies is feasible, then a before and after methodology will be used, i.e. estimating the change in income and health outcomes of beneficiaries before and after the project.

(b) Non-Revenue Water (NRW) Activity

The objective of this project component is to reduce non-revenue water, thereby improving the efficiency of the Dar es Salaam Water and Sewerage Company (DAWASCO). The specific elements of this project component have yet to be determined. Accordingly, the specific plan for impact evaluation will also have to be planned at a later time.

It will be difficult to assess household or firm level impacts, in terms of health and productivity, from the reduction in physical leakage since the Lower Ruvu Plant Expansion Activity project will also expand the total volume of water available to DAWASA clients, unless only a section of the water supply system is affected by the NRW Activity. Furthermore, an engineer should provide information on whether the benefits from the Lower Ruvu Plant Expansion Activity will be uniform across all DAWASA clients. If it is not, it will be extremely difficult to disentangle these two project components. The impact evaluation, even using the 20 meter discontinuity as described above, may need to evaluate the Lower Ruvu Plant Expansion Activity and the NRW Activity jointly.

Commercial Losses

Commercial losses constitute a significant portion of total NRW levels. Efforts to redress commercial NRW include improving customer metering; improving billing systems, which may include debt collection; and detection of illegal connections. With appropriate program design,

this component of the NRW project could be evaluated rigorously. Research questions would include, among others, how do we provide incentives and create low-cost billing systems so that people pay their bills on time and reduce illegal connections. Is metering effective in the context of Tanzania or would a flat-rate fee per connection be better, as it requires lower management costs for DAWASCO.

In order to assess the advantages of metering, we need to know how people's behavior changes when they pay a flat fee. For example, all neighbors will use the same tap and there may be substantial wastage as households do not pay for the marginal cost of water. The difficulty, however, is observing households' water consumption in the absence of meters. There may also be political difficulties in having two pricing schemes within similar households or businesses within the Dar area. These two problems make this question difficult to answer.

The programmatic advantages of a debt collection program are twofold: the monetary gains from the recuperated monies and the indirect benefit from creating good incentives for firms and households to pay their bills on time in the first place. The effectiveness of the program in terms of the former is easily observable. The second component, however, is less tangible and harder to distinguish from other confounding effects. To capture these benefits, an impact evaluations strategy is needed. The collection of debts could begin in certain DMAs, ideally in a randomized component. The circumstance under which randomization would be appropriate is as follows: if the number of DMAs where the debt levels are sufficiently high that a program intervention is warranted is greater than the funding available for debt recollection efforts. A rigorous evaluation of the impact of debt collection on subsequent payment could then be assessed by comparing the debt incidence and levels in DMAs (randomly) exposed to the program with non-program DMAs.³

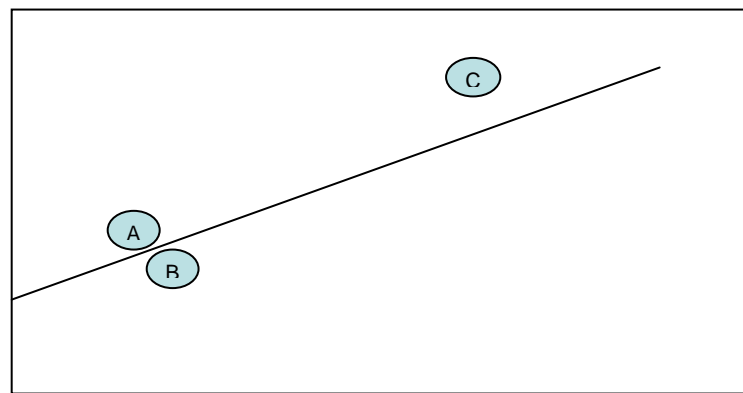
More specific questions regarding effective techniques for debt collecting, or the type of contract between DAWASA, the contractor and the hired collector, could easily be addressed in this framework as well: given a set of DMAs which will be treated, a collection technique can be randomly assigned to each DMA. An example: in Sao Paolo, the collectors received a percentage of the debt collected as incentive. The incentive scheme in the contract could be randomly varied by DMA (unless the contractor feels this would lead to resentment and therefore a decline in productivity across workers). There are numerous different contract choices: tournament form, relative pay, or commission pay.

Likewise, a program of illegal connection detection could reduce the number of illegal connections elsewhere in a given neighborhood, since the program would increase the "cost" of

³ The randomization could occur within the set of DMAs which have higher than average debt levels, allowing both some targeting of the program and rigorous evaluation.

illegal connections as all households would then believe that there was some positive probability of getting caught. Therefore, analyzing spillover effects, i.e. whether the number of illegal connections declines in areas next to a targeted area, would be of interest. Of course, in order to estimate the spillovers, we need to observe the number of illegal connections in “untreated” areas. This appears to be a contradiction. However, this could be estimated if the program is implemented in multiple phases. Consider there being two phases, 1 and 2, and three neighborhoods, A, B and C, which are all similar to one another but A and B are adjacent as in Figure 3.

FIGURE 3: ILLUSTRATION OF PHASED CONSTRUCTION



If A is treated in phase 1 and B and C are delayed until phase 2, either randomly or based on factors which are unrelated to the treatment effect, the spillover effect could be estimated by comparing the number of illegal connections found in B compared to C. We would expect neighborhood B to be affected by observing treatment in neighborhood A but there would be no, or a smaller, spillover effect to neighborhood C. While this is possible, it is overall a strategy which relies on many assumptions regarding the similarities of A, B and C and is accordingly not strongly recommended.

A note on contracting: there is some evidence that performance-based service contracts are an effective way of creating proper incentives for a private sector firm to undertake a program to reduce NRW. According to Kingdom, Liemberger and Marin (2006), an advantage of such a contract is that it provides flexibility to the contractor -- thereby allowing the contractor to make efficient and potentially creative decisions to reduce NRW. Should MCC choose to design the NRW contract in this manner, there will be consequences for the impact evaluation. Such flexibility would likely impede MCC from designing the project implementation as necessary for a rigorous impact evaluation. It is therefore recommended to revisit the impact evaluation strategy prior to signing a performance-based contract. It is possible to create a flexible contract that still allows an impact evaluation, such as designating certain DMAs as “pilot” zones in order

to do smaller scale randomized trials. If multiple contractors are employed, the contract structure could be varied to analyze how effective performance-based contracts are in improving cost efficiency and total NRW levels.

(c) Morogoro Water Supply

The Morogoro Water Supply Activity will rehabilitate the water intake, water transfer and treatment plants for the existing network. This project itself is therefore not amenable to rigorous evaluation since the infrastructure improvements will benefit all Morogoro Urban Water and Sanitation Authority (MORUWASA) clients simultaneously. MORUWASA does, however, intend to expand distribution lines as phase 2 of this project but this phase is unlikely to be complete or even start during the Compact period. In order to evaluate the project, MCC would have to plan an evaluation outside the Compact to evaluate the household or firm level impacts of the project using rigorous techniques.

ANNEX 4: RESPONSIBILITIES OF THE DIRECTORATE OF MONITORING AND EVALUATION

The Directorate of M&E is responsible for the overall Monitoring and Evaluation (M&E) strategy and implementation, including related activities within the Program and through its implementing entities, while providing timely and relevant information to Program stakeholders in the GoT, civil society and the private sector. This entails close communication with all involved in M&E design and implementation. Duties and responsibilities of the directorate will include:-

- Guide the establishment of the M&E system and strategy, including data-collection, data-analysis and reporting systems, and oversee effective compliance by the implementing entities;
- Coordinate the installation of hardware and software for M&E, including the Management Information System (MIS);
- Ensure that the M&E Plan and Economic Rates of Return (ERR) analysis are modified and updated as improved information becomes available (updating indicators, baselines, and targets upon the receipt of information from technical studies or better statistical information on income and/or poverty);
- Make final the design of the impact evaluation strategy in collaboration with MCC, including quantitative and qualitative evaluations, drafting final Terms of Reference (TORs) for contracts with Consultants who will carry out the impact evaluations and/or any required data gathering for impact evaluations;
- Collaborate with the Procurement Director to prepare and conduct procurement of various M&E contracts (Monitoring System, Impact Evaluations, Data Quality Review, Surveys, etc), including the technical evaluation of M&E proposals;
- Manage the technical implementation of contracts with local and/or international consultants for M&E services and verify the quality and quantity of all deliverables;
- Coordinate data collection for M&E, including the design of surveys by the implementing entities;
- Coordinate and/or execute special studies and ad hoc evaluations, as needed, to assess activity impacts;

- Ensure that findings are disaggregated by gender, age and income, as applicable;
- Participate in the monitoring of the Program components through site visits, review of Program reports and review of secondary data;
- Review M&E data regularly with decision makers to ensure that the Program is accomplishing its objectives and corrective actions are taken if changes are warranted;
- Prepare and submit periodic consolidated reports of ongoing Program and M&E activities to the MCA-Tanzania and MCC (including Quarterly and Annual Performance Reports);
- Draw lessons for experience sharing (best practices), improve information sharing systems within MCA-Tanzania, Tanzanian public and the donor community and enhance advocacy for policies and Program;
- Ensure that periodic reports of ongoing Program and M&E findings are made public and easily accessible on the MCA-Tanzania Program's web page;
- Develop close working relationships with the Program participants and stakeholders;
- Participate in the planning and execution of the Program annual reviews;
- Ensure that Management Unit staff and implementing entities are receiving adequate support to execute their M&E responsibilities;
- Organize and oversee regular data quality reviews;
- Identify and manage other M&E staff, as needed, to implement M&E activities;
- Carry out human resource management as well as delegation of work to staff;
- Ensure effective and economic use of MCA-Tanzania assets; and
- Perform any other responsibilities that may be requested from time-to-time by the CEO.

INDICATOR MODIFICATION MEMO-ENERGY SECTOR

Submitted by: MCA- Tanzania				
Date: March 2010				
Sector	Indicator	Definition	Modification	Justification and new indicator or definition (where applicable)
Energy	Value added	Profits plus wages of enterprises	Change classification from incremental to level	A descriptive quality of an indicator may be changed. The classification was incorrect.
	Quantity of Electricity sold	Incremental amount of electricity sold	Change classification from Incremental to cumulative and definition	A descriptive quality of an indicator may be changed. The classification will be cumulative and the definition will be Amount of electricity sold.
	New Power Customers	Number of new connections resulting from MCC investment	Change indicator name and definition and change disaggregation categories from T1-T5 to D1, T1 and T2&T3 and change classification from incremental to cumulative	A descriptive quality of an indicator may be changed (incremental to cumulative) and tariffs categories. First instead of tracking New Customers, the indicator will track current customers and be called “ current customers ” (definition will be “ number of current connections ” and be classified as cumulative. Second, according to Tanesco’s website, the tariff categories for customers have changed, so the indicator needs to reflect this by reporting on the current categories in the following way: <ul style="list-style-type: none"> • Power customers: D1 • Power customers: T1 • Power customers: T2&3
	Power Quality	Magnitude of voltage fluctuations (% deviation from standard voltage level each hour) at primary substations feeding target regions /cities (Zanzibar, Mwanza, Tanga, Morogoro, Iringa, Mbeya, Dodoma and Kigoma)	Delayed reporting for the indicator and changed definition of the indicator	The indicator’s quality is determined to be poorer than initially thought when the indicator was selected for inclusion in the M&E Plan. Despite its appropriateness, the indicator should not be used for reporting at the moment for the reason that, although Power Quality Instruments were installed in all Grid Substations and the Management centre being in Dar-es-Salaam, the system has never functioned properly to guarantee proper monitoring of the factor in question. As such incorrect figures have been submitted by IEs, which could not have any use value. Similarly, voltage measuring instruments installed in most grid substations are not accurate due to old age and lack of condition monitoring (timely calibration) to some. However, plans are underway to replace the old equipment and to improve the reporting system. Therefore, data will not be reported on this indicator until the Sept. 10, 2010 Disbursement Request. New definition: Average number of hours per month that voltage fluctuates past acceptable range for sub-stations in each target region.

Submitted by: MCA- Tanzania

Date: March 2010

Sector	Indicator	Definition	Modification	Justification and new indicator or definition (where applicable)
	Power reliability	Amount of energy not served in KWh (for all target regions) and generation failure (for Kigoma region)	Name of indicator, Definition of indicator and units modified	A descriptive quality of an indicator may be changed such as the definition, source, frequency, etc. The definition is supposed to capture improvement in reliability and availability of power to consumers as a result of the intervention. In order to capture this, the indicator should be "Power reliability: frequency of outages" and it should, therefore, be defined as "Total number of power interruptions (outages) in each region (this is a proxy to System Average Interruption Frequency Index or SAIFI)" The units for this indicator would be: Number of interruptions (outages) divided by number of customers for each region
	Power outage duration	Duration of power outages disaggregated by target region	Name of indicator, Definition of indicator and units modified	A descriptive quality of an indicator may be changed such as the definition, source, frequency, etc. The new indicator should be: "Power reliability: duration of outages." The new definition should be: "Sum of duration of power outages for each region (this is a proxy to System Average Interruption Duration Index or SAIDI)." New units for this indicator should be: "Sum of hours of all outages divided by number of customers served for each region."
	Transmission capacity	Primary and Secondary substation capacity added to Malagarasi and Kigoma distribution activity and grid and primary substation capacity added for other seven regions (including T&D and Zanzibar).	Name of the indicator and definition of the indicator changed and classification change from incremental to cumulative and units changed from MVa to MVA	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. New indicator will be "Transmission and distribution substation capacity" and new definition will be "for each region, the sum of the transmission and distribution transformer capacity." The classification of the indicator will change from incremental to cumulative.
	All process milestones	N/A	Addition of process milestones and targets	New indicators may be added to the M&E Plan when the existing indicators do not meet the adequacy criteria for indicators. This is the case for the process milestones for the following reason: <ol style="list-style-type: none"> To reflect the Revised Sector Work Plan with their respective targets in the M&E plan

NEW PROCESS MILESTONES - ENERGY SECTOR

ACTIVITY	PROCESS MILESTONE	UNIT		TARGET				
				Year 1	Year 2	Year 3	Year 4	Year 5
Zanzibar Interconnector activity	Certificate for EIA (Zanzibar) issued	Date	New		23-Feb-10			
	Certificate for EIA (Mainland) issued	Date	New		23-Feb-10			
	RAP approved (Zanzibar)	Number	New		1			1
	RAP approved (Mainland)	Number	New		1			1
Distribution Rehabilitation and extension activity	RAPs approved	Number	New		7			7
	Environmental and Social Management Plan (ESMP) for network extension approved	Date	New		10-Dec-09			
Zanzibar Interconnector activity, Distribution Rehabilitation and extension activity, Malagarasi hydropower and Kigoma distribution	Value of supervision contract	US\$	New					
	Percentage disbursed on supervision contract	Percentage	New	9%	50%	65%	100%	100%
Zanzibar Interconnector activity	Cable contract signed	Date	New		15-Apr-10			
	Value of cable contract	US\$	New					
	Percentage disbursed on cable contract	Percentage	New		49%	49%	73%	100%
	Overhead lines contract signed	Date	New		15-May-10			
	Value of overhead lines contract	US\$	New					
	Percentage disbursed on overhead lines contract	Percentage	New		15%	61%	95%	100%
Zanzibar Interconnector activity, Distribution Rehabilitation and extension activity	Substation rehabilitation/upgrade contract signed	Date	New		4-Jun-10			
	Value of substation rehabilitation/upgrade contract	US\$	New					
	Percentage disbursed on substation rehabilitation/upgrade contract	Percentage	New		15%	22%	95%	100%
Distribution Rehabilitation and extension activity, Malagarasi hydropower and Kigoma distribution activity	Transmission and distribution lines contract signed	Date	New			15-Nov-10		
	Value of transmission and distribution lines contract	US\$	New					
	Percentage disbursed on transmission and distribution lines contract	Percentage	New			28%	86%	100%
PROCESS MILESTONES ELIMINATED								
Zanzibar Interconnector activity, Distribution Rehabilitation and extension activity, Malagarasi hydropower and Kigoma distribution	Percentage disbursed for design and supervision contract (CE) year 1 budgeted	Percentage	Old version	100%				
Distribution Rehabilitation and extension activity	Resettlement and Environmental Framework complete	Date	Old version	30 June 09				

INDICATOR MODIFICATION MEMO-WATER SECTOR

Submitted by: MCA- Tanzania

Date: March 2010

Sector	Indicator	Definition	Modification	Justification and new indicator or definition (where applicable)
Water	Number of Household using improved source for drinking water (Dar es Salaam/ Morogoro).	Improved source of drinking is defined as (a) type of source = households connection (in-home or in-yard), public standpipe, (b) <30 minutes (go, wait, collect and return), (c) <400 meters, and regulatory framework incorporates issues of water quality and tariffs/affordability) disaggregated by Dar es Salaam and Morogoro.	Name of the indicator and definition of the indicator changed; classification changed from incremental to cumulative	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. DAWASA's and MORUWASA's monthly reporting and their respective data bases and billings are set to indicate domestic customers only and do not give breakdown on details like in –yard, in-home, public stand-pipe or neighbors-yard. In view of this, the indicator should be the same as above, but number of households should be replaced with number of customers. New indicator will be "Number of domestic customers" and definition will be "Number of domestic customers using in-home water pipes (Dar es Salaam/Morogoro)"
	Number of businesses using improved water source	Improved source comprises (a) business connection (b) 24-hour of supply (c) supplied by provider acting within the regulatory framework (incorporates issues of water quality and tariffs/affordability) disaggregated by Dar es Salaam and Morogoro	Name of indicator and definition changed; classification changed from incremental to cumulative	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. DAWASA's and MORUWASA's monthly reporting and their respective data bases and billings are set to indicate the number of non-domestic customers, which includes both commercial and institutional customers . The indicator should therefore be 'number of non-domestic customers (commercial and institutional)' and defined as 'number of non-domestic customers (commercial and institutional) using improved source of water' (Dar es Salaam and Morogoro) . This will harmonize data to be collected by IEs and MCA-T.
	Volume of non-revenue water (Dar-es-salaam /Morogoro)	Volume of non-revenue water/Volume of water reduced disaggregated by Dar es Salaam and Morogoro	Definition of the indicator changed	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. The definition should be corrected to read "(piped water minus volume of water billed)/ volume of water produced"
	Volume of individual water consumption (Dar-es-salaam /Morogoro)	Daily per capita water consumption by type of primary water source: in-home, in-yard, neighbor's yard, public tap, other disaggregated by Dar es Salaam and Morogoro	Name and definition of the indicator changed; classification changed from incremental to level	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. DAWASA and MORUWASA databases captures data on customers who are metered and those who are non-metered (in cubic meters per capita per month). Data on individual customer consumption in-home, in-yard and neighbours' yard are not collected. Thus, change is for the sake of harmonizing the data to be collected between the IEs and MCA-T. New indicators are <ol style="list-style-type: none"> I. Volume of individual water consumption (domestic metered customers) II. Volume of individual water consumption (domestic non-metered customers) <p>The new definition for the indicators will be:</p>

Submitted by: MCA- Tanzania

Date: March 2010

Sector	Indicator	Definition	Modification	Justification and new indicator or definition (where applicable)
				<ol style="list-style-type: none">I. Daily per capita water consumption (metered) disaggregated by Dar es Salaam and Morogoro (in litres per capita per day)II. Daily per capita water consumption (non metered) disaggregated by Dar es Salaam and Morogoro (in litres per capita per day)
	All process milestones	N/A	Addition of process milestones and targets	<p>New indicators may be added to the M&E Plan when the existing indicators do not meet the adequacy criteria for indicators. This is the case for the process milestones for the following reasons:</p> <ol style="list-style-type: none">1. To reflect the Revised Sector Work Plan with their respective targets in the M&E plan2. To include common indicators in the M&E Plan as per MCC requirements.

NEW PROCESS MILESTONES - WATER SECTOR

ACTIVITY	PROCESS MILESTONE	UNIT		TARGET				
				Year 1	Year 2	Year 3	Year 4	Year 5
Lower Ruvu Plant Expansion	EIA Certificate issued	Date	New		8-Jan-10			
Morogoro water supply	EIA Certificate issued	Date	New		8-Jan-10			
Lower Ruvu Plant Expansion	Contract signed for supervision	Date	New			1-Oct-10		
	Value of supervision contract	US\$	New					
	Percentage disbursed for supervision	Percentage	New			44%	79%	100%
Lower Ruvu Plant Expansion, Morogoro water supply	Feasibility Design Update contract signed	Date	No change	30 May 09				
	Value of Feasibility Design Update	US\$	New					
	Percentage disbursed on Feasibility Design Update contract	US\$	New target	38%	100%			
Lower Ruvu Plant Expansion	Contract for construction signed	Date	New			10-Dec-10		
	Value of construction contract	US\$	New					
	Percentage disbursed on construction contract	Percentage	New			48%	90%	100%
Morogoro water supply	Contract signed on supervision	Date	New		15-July-10			
	Value of supervision contract	US\$	New					
	Percentage disbursed on supervision	Percentage	New		10%	51%	88%	100%
	ERR recalculated	Date	New target		15-Feb-10			
	Contract for construction signed	Date	New		15-June 10			
	Value of construction contract	US\$	New					
	Percentage disbursed on construction	Percentage	New			14%	62%	91%
Non Revenue Water Part 1	Contract signed on construction	Date	New		11-Mar-10			
	Value of construction contract	US\$	New					
	Percentage disbursed on construction	Percentage	New		11%	61%	89%	100%
Non Revenue Water Part 2	Contract signed on baseline study and Technical Specification	Date	New		15-Feb-10			
	Value of baseline study and technical specification study	US\$	New					
	Percentage disbursement on programme co-ordination and technical assistance consultancy	Percentage	New			12%	44%	88%
Lower Ruvu Plant Expansion, Non-Revenue Water and	Amount disbursed on supervision and design and feasibility studies	US\$	New					

ACTIVITY	PROCESS MILESTONE	UNIT		TARGET				
				Year 1	Year 2	Year 3	Year 4	Year 5
Morogoro water supply	Amount disbursed on construction/works	US\$	New					
PROCESS MILESTONES ELIMINATED								
Morogoro water supply	ESIA and RAP approved	Date	Old version	31-Sept-09				
Lower Ruvu Plant Expansion , Morogoro water supply	Percentage disbursed on Feasibility Design Update contract	US\$	Old version	21%				
Morogoro water supply	ERR recalculated	Date	Old version	31-Sept-09				

Submitted by: MCA- Tanzania

Date: March 2010

Sector	Indicator	Definition	Modification	Justification and new indicator or definition (where applicable)
Transport	Average annual daily traffic (AADT)	Average number of vehicles by type on MCC-upgraded roads weighted disaggregated by road segment	Change definition	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. New definition will be "Average number of vehicles upgraded roads disaggregated by road segment" Data on indicator will be collected for all roads upgraded.
	Kilometres of roads upgraded	Kilometers of road upgraded from gravel or earth to bitumen pavement disaggregated by road segment	Change definition	A descriptive quality of an indicator may be changed such as the definition, source frequency, etc. New indicator definition will be: "Kilometers of road upgraded disaggregated by road segment"
	All process milestones	N/A	Addition of process milestones and targets	New indicators may be added to the M&E Plan when the existing indicators do not meet the adequacy criteria for indicators. This is the case for the process milestones for the following reasons: <ol style="list-style-type: none"> 1. To reflect the Revised Sector Work Plan with their respective targets in the M&E plan 2. To include common indicators in the M&E Plan as per MCC requirements.

NEW PROCESS MILESTONES - TRANSPORT SECTOR

ACTIVITY	PROCESS MILESTONE	UNIT	TARGET					
				Year 1	Year 2	Year 3	Year 4	Year 5
Mainland Trunk Roads	Design contract signed – Tunduma Sumbawanga	Date	New	27-Mar-09				
	Value of design contract – Tunduma Sumbawanga	US\$	New					
	Percentage disbursed Design contract Tunduma Sumbawanga	Percentage	New	40%	100%			100%
	Design contract signed Mtwara	Date	New	31-Mar-09				
	Value of Design contract Mtwara	US\$	New					
	Percentage disbursed Design contract Mtwara	Percentage	New	17%	100%			100%
	Supervision contract signed Tanga Horohoro	Date	New	9-Sept-09				
	Value of Supervision contract Tanga Horohoro	US\$	New					
	Percentage disbursed Supervision contract Tanga Horohoro	Percentage	New	10%	40%	80%	95%	100%
	Supervision contract signed Tunduma Sumbawanga	Date	New	30-Sept-09				
	Value of Supervision contract Tunduma Sumbawanga	US\$	New					
	Percentage disbursed Supervision contract Tunduma Sumbawanga	Percentage	New	10%	62%	91%	96%	100%
	Supervision contract signed Mtwara	Date	New		15-Oct-09			
	Value of Supervision contract Mtwara	US\$	New					
	Percentage disbursed Supervision contract Mtwara	Percentage	New		67%	95%	100%	100%
	Construction contract signed Tanga Horohoro	Date	New		15-Jan-10			
	Value of Construction contract Tanga Horohoro	US\$	New					
	Percentage disbursed Construction contract Tanga Horohoro	Percentage	New		17%	60%	90%	100%
	Construction contract signed Tunduma Sumbawanga (Tunduma Ikana)	Date	New		1-Apr-10			
	Value of Construction contract Tunduma Sumbawanga (Tunduma Ikana)	US\$	New					
Percentage disbursed Construction contract Tunduma Sumbawanga (Tunduma Ikana)	Percentage	New		10%	65%	90%	100%	
Construction contract signed Tunduma Sumbawanga (Ikana Laela)	Date	New		1-Apr-10				
Value of Construction contract Tunduma Sumbawanga (Ikana Laela)	US\$	New						
Percentage disbursed Construction contract Tunduma Sumbawanga (Ikana Laela)	Percentage	New		10%	65%	90%	100%	
Construction contract signed Tunduma Sumbawanga (Laela Sumbawanga)	Date	New		15-Mar-10				

ACTIVITY	PROCESS MILESTONE	UNIT	TARGET					
				Year 1	Year 2	Year 3	Year 4	Year 5
	Value of Construction contract Tunduma Sumbawanga (Laela Sumbawanga)	US\$	New					
	Percentage disbursed Construction contract Tunduma Sumbawanga (Laela Sumbawanga)	Percentage	New		17%	50%	90%	100%
	Construction contract signed Mtwara (Peramiho Mbinga)	Date	New		1-Apr-10			
	Value of Construction contract Mtwara (Peramiho Mbinga)	US\$	New					
	Percentage disbursed Construction contract Mtwara (Peramiho Mbinga)	Percentage	New		10%	47%	90%	100%
	Construction contract signed Mtwara (Songea Namtumbo)	Date	New		1-Apr-10			
	Value of Construction contract Mtwara (Songea Namtumbo)	US\$	New					
	Percentage disbursed Construction contract Mtwara (Songea Namtumbo)	Percentage	New		10%	47%	90%	100%
	EIA Certificate Issued	Number	New	1	5			5
	RAPs approved	Number	New	1	5			5
	Wildlife Management Area MoU signed between MCA-T and USAID	Date	New	8-Apr-09				
Zanzibar Rural Roads	Contract signed of Feasibility study, EIA, resettlement scoping and ERRs contract, plus options	Date	New	24-Sep-09				
	Value of Feasibility study, EIA, resettlement scoping and ERRs contract, plus options	US\$	New					
	Percentage disbursed on Feasibility study, EIA, resettlement scoping and ERRs contract	Percentage	New		100%			100%
	Percentage disbursed on Design, RAPs and bid package option of contract	Percentage	New		100%			100%
	Percentage disbursed on Construction Supervision option of contract	Percentage	New			55%	100%	100%
	Contract signed for construction	Date	New		30 Nov 10			
	Value of construction contract	US\$	New					
	Percentage disbursed for construction contract	Percentage	New			60%	100%	100%
Mainland Trunk Roads and Zanzibar Rural Roads	Amount disbursed on supervision and design and feasibility studies	US\$	New					
	Amount disbursed on construction	US\$	New					

ACTIVITY	PROCESS MILESTONE	UNIT	TARGET					
				Year 1	Year 2	Year 3	Year 4	Year 5
Mafia Island Airport	Contract signed for supervision of construction of Mafia airport	Date	New		15-May-10			
	Value of supervision of mafia airport contract	US\$	New					
	Percentage disbursed for supervision of mafia airport contract	Percentage	New		15%	32%	58%	100%
	Sign contract for construction of Mafia airport	Date	New			15-May-11		
	Value of contract for constuction of Mafia airport	US\$	New					
	Percentage disbursed for construction of Mafia Airport	Percentage	New			20%	69%	100%
	EIA Certificate Issued	Number	New					1
PROCESS MILESTONES ELIMINATED								
Mainland Trunk Roads	Design contract signed (Tanga-Horohoro)	Date	Old version					
Mainland Trunk Roads	Design contract signed (Tunduma-Laela)	Date	Old version					
Mainland Trunk Roads	Design contract signed (Laela-Sumbawanga)	Date	Old version					
Mainland Trunk Roads	Design contract signed (Songea-Nambumbo)	Date	Old version					
Mainland Trunk Roads	Design contract signed (Peramiho Jct-Mbinga)	Date	Old version					
Mainland Trunk Roads	ESIA approved (Tanga-Horohoro)	Date	Old version	01-Aug-09				
Mainland Trunk Roads	ESIA approved (Tunduma-Laela)	Date	Old version	01-Aug-09				
Mainland Trunk Roads	ESIA approved (Laela-Sumbawanga)	Date	Old version	01-Aug-09				
Mainland	ESIA approved (Songea-Namtumbo)	Date	Old	30-Jun-09				

ACTIVITY	PROCESS MILESTONE	UNIT	TARGET					
				Year 1	Year 2	Year 3	Year 4	Year 5
Trunk Roads			version					
Mainland Trunk Roads	ESIA approved (Peramiho Jct-Mbinga)	Date	Old version	30-Jun-09				
Mainland Trunk Roads	RAP approved (Tanga-Horohoro)	Date	Old version	01-Aug-09				
Mainland Trunk Roads	RAP approved (Tunduma-Laela)	Date	Old version	01-Aug-09				
Mainland Trunk Roads	RAP approved (Laela-Sumbawanga)	Date	Old version	30-Jun-09				
Mainland Trunk Roads	RAP approved (Songea-Namtumbo)	Date	Old version	30-Jun-09				
Mainland Trunk Roads	RAP approved (Peramiho-Mbinga)	Date	Old version	30-Jun-09				
Zanzibar Rural Roads	Pemba Rural Roads final design contract signed	Date	Old version	26-Feb-09				
Zanzibar Rural Roads	Project Coordination and Supervision contract signed	Date	Old version	10-Apr-09				
Zanzibar Rural Roads	ESIA approved	Date	Old version	1-Sep-09				
Zanzibar Rural Roads	RAP approved	Date	Old version	1-Sep-09				
Zanzibar Rural Roads	ERRs recalculated	Date	Old version	18-Jun-09				
Mafia Island	Final design approved	Date	Old version	3-Jun-09				

ACTIVITY	PROCESS MILESTONE	UNIT	TARGET					
				Year 1	Year 2	Year 3	Year 4	Year 5
Airport								
3-Jun-09	Strategic Environmental Assessment Complete	Date	Old version					
Mafia Island Airport	Environmental Assessment, as required, approved	Date	Old version	3-Jun-09				
Mafia Island Airport	RAP approved	Date	Old version	3-Jun-09				