



Report Number : ICRR0020246

1. Project Data

Project ID P096336	Project Name MW-Sec Natl Water Dev Project SIL (FY07)	
Country Malawi	Practice Area(Lead) Water	Additional Financing P124486
L/C/TF Number(s) IDA-43070,IDA-49460,IDA- H2940,IDA-H6900	Closing Date (Original) 31-Oct-2012	Total Project Cost (USD) 318,000,000.00
Bank Approval Date 24-May-2007	Closing Date (Actual) 31-Oct-2015	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	50,000,000.00	0.00
Revised Commitment	169,132,030.36	0.00
Actual	164,439,794.66	0.00

Prepared by Arun Arya	Reviewed by John R. Eriksson	ICR Review Coordinator Christopher David Nelson	Group IEGSD (Unit 4)
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Project ID P110157	Project Name MW-Sec National Water Dev - ACGF (FY08) (P110157)
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L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
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25,000,000.00

Bank Approval Date
 13-Mar-2008

Closing Date (Actual)

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	0.00	25,000,000.00
Revised Commitment	0.00	24,721,840.00
Actual	0.00	24,721,840.00

2. Project Objectives and Components

a. Objectives

According to the Project Appraisal Document (PAD, Section B, Para 28, Page 8), the development objective of the project was “to increase access to sustainable water supply and sanitation services for people living in cities, towns, market centers, and villages and improve water resources management at the national level.”

Financial Agreement Development Objective

According to the Financing Agreement (July 17, 2007, Schedule 1, p.6) the project objectives were to “(a) increase access to sustainable water supply and sanitation services for persons living in cities, towns, villages, and Market Centers within the Recipient’s territory; and (b) improve water resource management at the national level.” IEG accepts the Financing Agreement formulation of the Development Objective.

The Africa Catalytic Growth Fund Grant Agreement made a grant to the project in 2008, administered by IDA (Schedule 1, p.7) that stated the following objective for the project: “to increase access to sustainable water supply and sanitation services for persons living in towns, villages and Market Centers within the Recipient’s territory”. The sub-objective of ‘improving water resources management at the national level was not included in the Grant Agreement.

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?



Yes

Date of Board Approval

02-Jun-2011

c. Will a split evaluation be undertaken?

d. Components

At the time of Appraisal, the Project had four components - Component A: Urban Water Supply and Sanitation for the cities of Blantyre and Lilongwe; Component B: Town, Market Center, and Rural Piped Water Supply and Sanitation; Component C: Water Resources Management; and, Component D: Sector Management and Urban Water Sector Reform.

The Component Description was changed after the Additional Financing and Restructuring in 2011 as follows:

- **Component A: Urban, Towns and Market Center Water Supply.** (Appraisal Estimate \$128.80 million; Actual Cost at Closure \$126.1 million)

This Component included investments and technical assistance in water supply in urban, towns and market centers implemented by all the Water Boards. This involved new construction, rehabilitation and renewal of specific infrastructure including in major urban areas, such as Blantyre and Lilongwe.

- **Component B: Sanitation and Hygiene.** (Appraisal Estimate \$5.17 million; Actual Cost at Closure \$4.56 million)

This Component included investments and technical assistance for sanitation and hygiene promotion in urban, towns, and rural areas implemented by the Ministry of Agriculture, Irrigation and Water Development (MAIWD) and the Water Boards, including a: (i) a communication campaign to increase the adoption of latrine options by residents in peri-urban areas of Blantyre and Lilongwe; (ii) capacity building of masons and other sanitation service providers; (iii) school sanitation in Dedza district; and (iv) sanitation sector reform.

- **Component C: Water Resources Management.** (Appraisal Estimate \$21.68 million; Actual Cost at Closure \$18.97 million)

This Component included investment preparation and related goods, and technical assistance to enhance capacity and prepare future investments in water resources management. Specific activities included: (i) preparation of detailed designs for new water sources for Blantyre and Lilongwe; (ii) Environmental and Social Impact Assessments for the new water sources; (iii) support for the procurement of supervision and transaction advisor for new water sources, (iv) constitution of an independent panel of experts to ensure adequate oversight of designs; (v) aerial survey of the lower Shire River to enable flood modelling, forecasting and early warning, and (vi) technical support for a licensing reform campaign.

- **Component D: Sector Management.** (Appraisal Estimate \$16.84 million; Actual Cost at Closure \$13.85 million)

This Component supported a Sector Wide Approach (SWAP); perform public awareness campaigns through use of different media to popularize water sector reforms; support establishment of the regulatory framework and financial sustainability of Water Boards; develop Sector Strategic Plan for



2012 to 2016; supporting Monitoring and Evaluation (M&E); support capacity building initiatives and operational improvements in Water Boards; and support staffing and operational costs of the Project Management Unit (PMU).

• **Component E: Rural Water Supply.** (Appraisal Estimate \$14.66 million; Actual Cost at Closure \$24.42 million)

This Component included investments and technical assistance in rural water supply implemented by the MAIWD. The specific activities under this component included: (i) construction of new gravity fed water supply system at Mvula, (ii) Rehabilitation and expansion of ten existing piped water supply schemes, and (iii) support to capacity building, implementation, studies and assessments.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost: The total cost of the project at appraisal was US\$195.00 million. Actual Cost was US\$189.17 million, 97 % of the project appraisal estimate. Actual Cost of Component E-Rural Water Supply- was 166 % of the Appraisal Estimate as the project surpassed the target for number of community water points constructed or rehabilitated. The project also constructed new household connections in rural areas, market centers and for institutions, which were not included in the original results framework.

Financing: The Project was planned to be financed by (1) International Development Association (IDA) financing of \$50.00 million; of which, \$22.45 million was Grant and \$ 27.55 million was Credit. Of the total IDA financing at appraisal of \$50 million, \$50.56 was disbursed (2) IDA Additional Financing of \$120.00 million; of which, \$25.00 million was Grant and \$95.00 million was Credit. Of the total additional financing of \$120.00 million, \$113.9 million was disbursed, and (3) an Africa Catalytic Fund (ACGF) Grant was made at appraisal of \$25.00 million; of which, \$24.72 million was disbursed.

Borrower Contribution: There was no Borrower contribution.

Restructuring:

There was Level One Restructuring done on May 4, 2011 The project development objective was revised to: “increase access to sustainable water supply and sanitation services in target areas and improve water resources management at the national level”. There was no substantive change in first objective of ‘increase in access to sustainable water and sanitation services’. There was only a change in the wording from ‘people living in cities, towns, market centers, and villages’ to ‘target areas’. This restructuring was accompanied with Additional Financing of \$120 million to benefit an additional 1.2 million people with new and improved water supply and sanitation services, and further develop the pipeline for critical water resources infrastructure in priority water supply areas. The project closing date was extended until October 31, 2015.

There was Level Two Restructuring done on March 21, 2014 to reallocate credit funds between components and revise the results framework.

Dates:

• The original project closing date was 10/31/2012.



- The project closing date was extended to 10/31/2015 in May 2011 at the time of Additional Financing and Restructuring.

3. Relevance of Objectives & Design

a. Relevance of Objectives

The objectives of the project were to (1) increase access to sustainable water supply and sanitation services for persons living in target areas (cities, towns, villages, and Market Centers within the Recipient's territory) and (2) improve water resources management at the national level. The project objective was consistent with national priorities and the Bank's Country Assistance Strategy at the time of appraisal as well as completion. At appraisal, the Malawi Growth and Development Strategy (MGDS) had recognized that strong and sustainable economic growth was key to reducing poverty. It emphasized infrastructure development as one of the main areas of focus and that domestic and international investors were attracted to "livable" cities with appropriate basic urban services. However, water and sanitation services in Malawi's cities, towns, and market centers were of questionable quality and sustainability. While the availability of water resources in Malawi in the aggregate was considered satisfactory, per capita water availability was declining at a rapid rate due to population growth. Using the 2000 figures, Malawi had the 4th lowest per capita water availability of the 14 Southern African Development Community (SADC) countries. At appraisal, only about 65 percent of Malawi's people had access to improved water supply and to achieve the MDG by 2015, the number of people served should have doubled both in rural communities and in towns and cities. The Government and Bank have worked together to prepare the National Water Development Program. The Second National Water Development Project was to be IDA'S contribution to this Program. The National Water Development Program was a five year, \$260million multi-donor effort to assist the government to improve the management of the Nation's water resources and to ensure the delivery of efficient, reliable, and sustainable water supply and sanitation services to an increasingly large number of population in the country.

The objectives were consistent with country priorities at project completion as well. This was manifested in "Malawi Water Sector Investment Plan (WSIP) (Vol. I, May 2012)" and Malawi's Water Sector Investment Strategy (WRIS). The WSIP has envisaged an investment of more than US\$140 million annually in water supply and sanitation, on average, between 2015 and 2030, and which is more than four times the amount invested each year in the period 2006 to 2011.

The project objectives were also consistent with Bank priorities laid out in Country Assistance Strategy (CAS) for FY13-FY16, dated December 17, 2012, under which. Under Theme 2 – Enhancing Human Capital and Reducing Vulnerabilities, there was a Result Area on 'Improved delivery of public services'. Under this result area, Outcome 2.1 was planned as "improved access to quality education, reliable nutrition and HIV/AIDS services, and sustainable water supply and sanitation services".



Rating

High

Revised Rating

High

b. Relevance of Design

a . Relevance of Design to Objectives:

The two specific PDOs were poorly aligned with the overall Project Objective. For example, in PDO#1, at the time of appraisal, there was almost zero emphasis on sanitation. In the original Project Description, sanitation was not a separate component but part of Water Supply components for urban, towns, market centers and villages. However, it would appear that sanitation was mentioned only to imply that it would be included, since there was no activity designed to improve access of sanitation services. There was no fund allocation for sanitation. There were no targets set in the Results Framework. Only through restructuring in 2011 was a new component 'B' earmarked for sanitation services. However, very meagre resources were allocated for this purpose. An allocation of \$5.17 million for sanitation services under Component 'B' was merely 2.6% of the total project cost of \$195 million. There was no baseline information available on the sanitation coverage in the PAD. Considering that the sanitation coverage was very low at 41% at project completion, it must have been much lower in 2007 when the project was appraised. Thus, project design did not address a major sector challenge facing the country at that time.

A major emphasis was on the urban and towns areas as compared to the rural areas. The allocation of project cost to urban and town areas was 72 % in comparison to only 8 % allocation for rural areas, whereas at the baseline, in 2007, the unserved population in villages was 3.7 million in comparison to 1.14 million unserved populations in urban, market centers and town areas. The target set for the rural areas was to provide access to 664,320 against unserved 3.7 million, whereas the target set for urban, market centers and towns was 1.6 million against unserved population of 1.63 million at the baseline in 2007. The lower emphasis on rural water supply was perhaps due to the presence of other development partners like Netherlands/UNICEF, African Development Bank, CIDA and Water Aid in the rural areas, but the rationale for such a low emphasis on rural areas was not explained in the project design. Setting the target for urban areas above the size of the unserved urban population at baseline is not explained. This is even more questionable in view of the fact that the project did not cater to all urban areas but focused more on the cities of Blantyre and Lilongwe.

Water source protection was recognized as a major challenge for sustainability, but no concrete intervention was planned within the context of this project. This created a risk to the achievement of development outcomes regarding improved access to water supply. In some cases, the project provided partial solutions to the water supply system problem. For example, in Blantyre, the capacity to produce water was designed to be increased, while the distribution system was very old, leading to pipeline damages and loss of water.

Regarding PDO#2, activities were aimed at building institutional capacity and preparing an investment plan. The project at entry was designed to lay the foundation of improved water resource management in the future, but not directly augment water resources in relation to demand in the project life. However, with support from the project, the government had prepared the Water Sector Investment Plan (WSIP) in 2012 which had projected the demand-supply gap in 12 out of 17 Water Resource Areas of the country by 2035. There could have been some activities included in the project design to address that gap during the project-restructuring in 2014.

The final Results Framework (RF) provides a good logical connection between the outputs, intermediate outcomes and project level outcomes in relation to the first objective of increasing access to sustainable



water supply and sanitation services. The outputs of new piped household water connections, improved community water points, improved latrines constructed, number of people reached with sanitation and hygiene messages are well linked with project level outcomes of people provided with access to improved water resources and sanitation. The project outcome of sustainable water supply and sanitation services are well linked with the intermediate outcomes of establishment of Water User Associations and Water Boards maintaining a working ratio between collected revenues and cash operating expenses above 1.1. The RF at Appraisal was, however, not comprehensive. The first objective was to increase access to sustainable water supply and sanitation in target areas, but intermediate outcomes did not include access to sanitation. This was subsequently included at the time of Additional Financing/ Restructuring. However, the target number of improved latrines to be constructed was kept at 6,900, which was extremely low in comparison to the targeted population and the low coverage of sanitary latrines, and could not be considered a significant increase in the access to sanitation facilities.

Moreover, the RF was weak in establishing a strong linkage between outputs, intermediate outcomes and project level outcomes regarding the second objective of improving water resource management at the national level. The output for this objective is preparation of a Sector Strategic Plan for 2012-2016 and the project level outcome is satisfactory completion of a water resources strategy. Mere preparation of a strategic plan could not ensure satisfactory completion and implementation of a strategy. Lacking was a better explanation of what constituted a strategy and how its completion would contribute to improved water resource management, as well as an identification of the actions that would lead to satisfactory implementation.

Rating
 Modest

Revised Rating
 Modest

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

To increase access to sustainable water supply and sanitation services for people living in cities, towns and market centers within the recipient's territory.

Rationale

Outputs

Water supply in cities and towns:

1 . 64,689 new piped household water connections were achieved as compared with a target of 59,400. The information on number of piped household water connections established before the project is not available.

2. 130,488 piped household water connections affected by rehabilitation works undertaken under the project as compared with a target of 100,000. The information on number of Water User Associations



piped household water connections affected by rehabilitation works before the project is not available.
3. 1,326 Improved community water points constructed or rehabilitated under the project (Kiosks) as compared with a target of 500. The information on number of improved community water points established before the project is not available.

Water supply in rural areas and market centers:

1. 2,801 Improved community water points constructed or rehabilitated as compared with the original target of 3,931 and the revised target of 2,790.
2. 330 New Household Connections in Rural areas. There was no target fixed, neither is any information available on the baseline.
3. 1,644 New Household Connections in Market Centers. There was no target fixed, neither is any information available on the baseline.
4. 64 New Institutional Connections. There was no target fixed, neither is any information available on the baseline.
5. 17 Water Users Associations established as compared with the target of 17. The information on number of Water User Associations established before the project is not available.
6. 14 Local Utility Operators recruited as compared with the target of 17. The information on number of Local Utility Operators existing before the project is not available.

Sanitation in cities and peri-urban areas of Blantyre and Lilongwe cities and school sanitation in Dedza district

1. 6,998 Improved latrines constructed under the project as compared with the original target of 5,745 and the revised target of 6,900. The information on number of improved latrines existing before the project is not available.
2. 367,448 People reached with sanitation and hygiene messages as compared with the target of 330,000. There was no target fixed at the beginning of the project. The aforesaid target was fixed on October 31, 2015, the last date of the project.
3. 11,624 people trained to improve hygiene behavior or sanitation practices as compared with the original target of 38,130. The target was revised to 10,000 on the last date of the project. i.e., on October 31, 2015

Outcomes

There was an increase in access of improved water resources to a total of 2,228,500 people; of which, 1,876,010 were in urban areas and 351,990 in rural areas. For improving sustainability of water supply, 17 Water User Associations were established and 5 Water Boards were supported to maintain a working ratio between collected revenues and cash operating expenses greater than or equal to 1.1. The area-wise baseline was based on the National Water Development Plan quoted in the PAD.

Looking at the achievements in relation to targets in rural areas, only 67 % of the targeted population was covered despite the low target. On the other hand, the target for urban, market centers and town areas was more than the total unserved population and the achievement exceeded the target. While admittedly, achievements were made until 2015 and population grew by that time, but still the achievement seems high, considering that the project was not covering the entire urban area.

Regarding Sanitation, 73,682 additional people were provided with access to improved sanitation. For sustainability of sanitation services, 11,624 persons were trained to improve hygiene behavior or sanitation practices. However, the targets set for sanitation services were too low in comparison to the challenges posed by the low coverage and could not have contributed significantly to the overall improvement in sanitation coverage. As per the WHO/UNICEF Joint Monitoring Programme for Water



Supply and Sanitation (JMP), Progress on Sanitation and Drinking Water, 2010 Update, Malawi had made a 14 % increase in sanitation coverage between 1990 and 2008, but was still far behind the Millennium Development Goals (MDGs). As per WHO/UNICEF, to achieve Malawi's 2015 MDG targets for sanitation, more than 600,000 people needed to obtain access to adequate sanitation facilities each year. Although helping the government achieve MDGs was not a project goal, it goes to show that in relation to this need, the contribution provided by the project was not significant.

Rating
Modest

Objective 2

Objective

To improve water resources management at the national level

Rationale

Outputs

- 1 . Water Resources Investment Strategy (WRIS) prepared, which identified and prioritized investments in the water resources sector.
- 2 . Detailed design and Environmental/Social Impact Assessment for critical water resources infrastructure approved by the Ministry of Agriculture, Irrigation, and Water Development (MAIWD)
- 3 . 2012-2016 Sector Strategic Plan approved by the Ministry
- 4 . Catchment Management Strategies for three basins developed.
- 5 . Multipurpose Water Investment Framework and Tools developed for economically, technically, environmentally, and socially attractive multi-purpose infrastructure investments in water resources.
- 6 . The Transboundary Water Resources Management Unit operationalized in the MAIWD
- 7 . Mapping of National Hydrogeological and Water Quality done to improve the understanding of country's aquifers in terms of groundwater potential and its associated water quality status.
- 8 . Various priority water resources investments reports prepared such as feasibility and detailed designs for Kamuzu barrage, Kamuzu Dam raising, and Diamphwe dam.
- 9 . Aerial survey of the lower Shire River conducted to enable flood modeling, forecasting and early warning.

Outcomes

The Project contributed towards improving water resources management at the national level by way of doing diagnostic studies and developing strategies and action plans. A substantial number of outputs were produced. This was followed by the passing of the Water Resources Act 2013 which set the legal and regulatory framework for development of water resources in the country. The project also supported the establishment of the National Water Resources Authority and carried out licensing reform campaigns for water resources, which increased awareness of the water resources act and improved the efficiency of processing licenses and licensing fee collection.



However, while with the technical support from the project, the government had prepared its Water Sector Investment Plan, in 2012; according to which, there was a projected gap between the demand and supply of water resources in 12 out of 17 Water Resource Areas of the country, by 2035, (Water Sector Investment Plan, Volume II, 2012, Table 2.4: Supply-Demand Balance by Water Resource Area (mega-liters per day), Page 86) no provision was made in the Government Budget or the Medium Term Expenditure Framework to bridge that gap.

Rating
Substantial

5. Efficiency

1. Ex-Ante Efficiency: The appraisal stage cost benefit analysis was done only for the initial IDA financing of US\$50 million. No analysis was done for the additional financing (US\$120 million) and the ACGF (US\$25 Million) components. The AF and the ACGF components were justified based on the results of the analysis done for the initial IDA investment component. The original analysis did not also cover the sanitation and hygiene component of the project and covered only 25.6% of the overall investment costs. The Economic Analysis was done by estimating Benefits in terms of: (1) Higher expenditure from increased consumption of water in the previously unserved peri-urban and formal urban areas, and (2) lower distance traveled and filling times at the new connections, leading to time savings. In this analysis, water consumption was valued at current water tariffs for estimating benefits. The economic analysis suggested that Component A of the project on Urban Water Supply had a positive economic Net Present Value (NPV) of \$97 million and Economic Internal Rate of Return (EIRR) of 48 % for the urban water supply component, and 20% for gravity systems and 14% for borehole users.

1. Ex-post Efficiency: At the project-completion, the benefits have been estimated based on: (i) incremental water production valued using consumers' willingness to pay (WTP), and (ii) an estimate of the avoided loss of income due to increased access to improved sanitation facilities and hygiene messages. The ICR argued that valuing the incremental water consumption at water tariffs ignores the consumer surplus and grossly understates project's contribution to Malawi's society welfare. The availability of water below their WTP incentivizes consumers to increase consumption. The ICR estimates the NPV of US\$254.2 million and the overall ERR of the project as 46.2%. The ICR stage economic analysis was done considering the overall investment (IDA, AF, and AGCF) for Components A, B and E while making necessary adjustments to the methodological approaches. The completion stage analysis covers 72.1% of the overall project investment costs.

During the process of ICR Review and Validation by IEG, the ICR Team was requested to do the



economic analysis based on water tariffs instead of WTP so as to be consistent with the appraisal estimates. The ICR Team did so accordingly. Net Benefits estimated on the basis of water tariffs were substantially lower than those estimated at the WTP. Calculated on the basis of tariffs, NPV was \$47.6 million at a discount rate of 10% and the EIRR was 17.3 %. While it is true that the ICR estimate of the ERR was less than the appraisal estimate, it is still significantly above the Bank discount rate of 10%. Moreover, one reason the ICR estimate might be lower is that it covers a much higher proportion of total costs than does the appraisal estimate.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	48.00	25.60 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	17.30	72.10 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Relevance of Objectives has been rated high. Relevance of Design has been rated Modest. Efficacy of the project in contributing to achievement of Objective 1 is rated Modest and that to the achievement of Objective 2 is rated Substantial. Efficiency of the project has been rated Substantial.

a. Outcome Rating

Moderately Satisfactory

7. Rationale for Risk to Development Outcome Rating

There were risks to the sustainability of development outcomes as follows:

1. Technical: There was encroachment of catchment areas which negatively affected the quantity and quality of water resources. This was identified at the appraisal stage but there was no activity designed under the project to mitigate this risk. An inadequate focus on protection of the source caused sedimentation due to



inappropriate land use practices in catchment areas. This may cause a significant increase in operating costs. Siltation of existing water works such as water intake and dams may also necessitate costly new works. Similarly, while there were investments in the water production and water treatment plant capacity, distribution systems were not rehabilitated. Consequently, the old pipes could burst causing water losses. There was a significant challenge in maintaining the aging water distribution systems as the urban population, especially in the low income and peri-urban areas, kept growing.

2. Financial: While the Project contributed towards improving water resources management at the national level by way of conducting diagnostic studies and developing strategies and action plans, it is not clear whether necessary resources for bridging the demand-supply gap were earmarked in the national budget. Also, the financial sustainability of utilities (i.e., the five water boards and WUAs) was still a concern despite substantial efforts so far. Outstanding water bills from public institutions and private entities constrain the financial capacity of Water Boards and WUAs. Clearing outstanding water bills from the public institutions was one of the grant covenants, which was fulfilled with some delays; however, water bill arrears were building up, causing risk to project outcomes.

3. Institutional: Since the Water Resources Bill was enacted only in late 2013, the subsequent support to the operationalization of the reform was delayed. There is a risk that not all goals will be realized in the short term, especially if there is discontinuity between dialogue and financial support until the agency is able to be financially independent of external support. An absence of water regulatory authority puts the sustainability of water supply services at risk. In regard to Sanitation, there is a poor institutional arrangement and policy framework for the sanitation sector. The mandate for the sector is contested by different ministries and entities. National policies do not allow subsidies on sanitation, while many of households need them because of their low income levels. There is no Sanitation Department to focus on policy-making and implementation of a sanitation campaign. While the project had supported the establishment of the Sanitation Department within the Ministry of Agriculture, Irrigation and Water Department (MIWAD) with a modest financial allocation of US\$870,000, it is not fully operational yet

a. Risk to Development Outcome Rating
Substantial

8. Assessment of Bank Performance

a. Quality-at-Entry

The Bank supported the Government to develop a National Water Development Program. The NWDP I and the NWDP II were implemented to operationalize this program. The Bank made significant efforts during the identification, preparation, and appraisal of NWDP II. Consequently, the project development objective aligns very well with Malawi's Growth and Development Strategy, the Millennium Development Goals, and the Bank's Country Partnership Strategies. The project had complex implementation arrangements involving many regions, ministries, departments, and utilities. Thus, it required intensive support from the Bank at the preparation stage to ensure that implementation moved at the desired pace.

The Project also had an objective of improving water resource management at the national level; but the



activities included in the project were primarily aimed at building institutional capacity and preparing an investment plan for water resources management. The project was designed to lay the foundation of improved water resource management in future, but not to directly augment water resources in relation to demand during the project life with the contribution of the project investments.

No resources were allocated to the sanitation sector and those allocated to rural areas were not commensurate with the levels of the challenges. This discrepancy was recognized at Midterm Review (MTR) (03/19/2010) and some funds were allocated for sanitation, but they were largely inadequate. The water source protection problem was recognized but no concrete intervention was planned within the context of this project. This created a risk to the achievement of development outcomes on improved access to water supply.

Initially, financial allocation to environmental and social safeguard monitoring were not adequate. (ICR, Page 25). This situation was rectified at the mid-term stage.

Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

The complex implementation arrangements and the sub-optimal implementation capacity of some of the implementing agencies tended to be offset by the Bank team's supervision efforts as acknowledged in the client's ICR. The series of well-prepared Aide Memoires indicated that the supervision missions focused on development impact, with particular attention given to performance indicators in assessing the implementation progress.

The Bank team in consultation with the implementing agencies and the government made a thorough assessment of the implementation process and progress at the MTR and made relevant course corrections and adaptations. The outcome and results indicators were refined to enhance realism and sanitation and hygiene interventions were included.

However, clearing of documents, including those related to procurement were perceived to have been slow during initial stages of project implementation. Granting no objections, clearance of procurement and other documents took longer than anticipated, mainly due to frequent changes in task team leadership. Speed of decision making and timeliness of disbursements improved as the project progressed, which was helped by presence of the TTLs on the ground. Decision making by World Bank staff has been prompt and technical support was adequate. A ten-day turnaround standard was instituted as good office practice. (ICR Page 26)

Quality of Supervision Rating

Moderately Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. Assessment of Borrower Performance



a. Government Performance

Overall, the government made efforts to ensure that the project was properly managed and successfully delivered. The project represented one of the most important strategies of the government towards meeting its development goals. The government had set-up a high level Program Steering Committee, which was chaired by the Secretary to the President and Cabinet, and was responsible for project oversight.

The government ensured that the implementation capacity of the staff of PMU was maintained at the desired levels. It largely fulfilled project covenants albeit with some delays. There was a one-year delay in compliance with the Service contract and the co-financing agreement was complied with six months after deadline. The covenant on ensuring the public debt to water boards proved problematic during the course of implementation. Although arrears were eventually cleared, this was not within the context of the water boards' scheme of debt categorization and planned time frames. This is likely to affect the operational efficiencies of the water boards post NWDP II implementation.

As of June 2015, the public sector outstanding arrears greater than 90 days were MWK7.5 billion. The objective of developing legislation for establishing a Malawi Water and Energy Regulatory Authority was not fulfilled and was scrapped at restructuring. The effect of these shortcomings was more on sustainability of the project after completion, rather than on the realization of the project outcomes.

Government Performance Rating

Moderately Satisfactory

b. Implementing Agency Performance

The performance of implementing agencies varied largely due to differences in capacity at project inception.

The performance of the MAIWD was satisfactory. It largely met its obligations. Together with the PMU, it facilitated the development of policies, laws and strategies such as Sanitation Policy, Water and Sanitation Sector Investment Plan, Water Resource Bill (passed), Sanitation Bill (not passed), and the Water Supply Regulation Bill (not passed). The ministry coordinated, monitored and evaluated NWDP II activities with clear accountability and reporting channels, but was not successful in overseeing implementation of safeguards, mainly due to limited allocation of funding. However, after recognizing initial short falls, the safeguard issues were closely monitored.

The PMU had a satisfactory performance, despite some challenges related to ensuring quality of works and fiduciary standards, resulting in less than expected quality of infrastructure, especially under the rural water supply component.

Blantyre water board had moderately satisfactory performance. Despite significant contractual management difficulties, which delayed completion of works, the outcome targets were achieved. There was a discernable improvement in water supply and sanitation services in Blantyre as demonstrated by substantial reduction in customer complaints and negative newspaper reporting about the board and the city council.



The Water Boards maintained the ratio of total operating revenues to total working expenses at 1.1 or above. Due to an improved financial situation, some boards were able to undertake sizable capital investments and prepare in-house designs for water supply systems. In total, the implementing agencies managed a contract worth US\$103.2 Million, about one-third of which had some sort of contractual management and supervision issues. However, the contract management issues did not affect the realization of the project development outcome targets; they mainly delayed the completion of tasks. By and large, the PMU, MAIWD, and the boards performed towards the achievement of intermediate and development outcome targets of the project.

In some cases, infrastructure construction was completed well in advance but actual delivery of services was lagging due mainly to high connection fees and the general culture of focusing on infrastructure delivery, rather than service delivery. The connection fee was reduced by about 50% and the connection picked up and at times surpassed expectations.

Implementing Agency Performance Rating

Moderately Satisfactory

Overall Borrower Performance Rating

Moderately Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

The Results Framework (RF) was an aggregate of the results agreed for the original IDA credit or grant, the Additional Financing credit or grant, and of the ACGF grant. It was slightly revised during the course of project implementation to ensure more alignment of indicators with PDO, adjust levels of target outcomes to the available financial resources, and introduce new indicators to capture aspects of the project not well addressed initially.

The Results Framework (RF) has an unusually high number of 10 PDO indicators and 22 Intermediate Outcome indicators; yet, it does not measure the objectives comprehensively.

Regarding PDO#1, the RF does not include the baseline for access to water supply and sanitation services in any of its indicators, failing which, it is not possible to measure the impact of the project on improving access of these services. The PDO indicator number 9 on 'number of people in urban areas provided with access to improved water sources' includes access in urban areas, towns and market centers. It is not possible to understand how much is the target and achievement for access in urban areas, towns and market centers separately. Targets and achievements are all clubbed together.

Similarly, PDO indicator number 3 on 'people provided with access to improved sanitation' does not permit identifying the extent of increase in access in sanitation services that occurred in peri-urban areas of Blantyre and Lilongwe cities and school sanitation in Dedza district.

The RF at project completion does not measure the 'sustainable' part of the objective. Initially, there were intermediate outcome indicator numbers 13, 19, 20, 21, 22 and 23 that measured the average hours of water supply service in targeted water utilities, but these were dropped towards the project end in March 2014. The reason provided in the Restructuring Paper dated was 'inconsistency and difficulty in



measuring’. Dropping of these indicators adversely affected the strength of the RF in measuring sustainability.

The RF does not include the baseline for access to water supply and sanitation services in any of its indicators, failing which, it is not possible to measure the impact of the project on improving access of these services.

There was lack of clarity on the definition of the indicator on rehabilitation of existing water supplies and mistakes in beneficiary calculations. The baseline information to verify key assumptions such as the pre-project number of people with access to water supply and sanitation services in the cities of Lilongwe and Blantyre, people using the different water sources (i.e., house and yard connections, public stand-posts, and community taps) in towns, market centers, and villages were not available. The specific annual targets were not fixed at the time of appraisal.

There were differences in the indicator targets as specified in the PAD and Financing Agreement as follows:

Indicator	Target as per PAD	Target as per Financing Agreement
Number of new connections	7,500	4,500
Number of rehabilitated connections	2,500	10,000
Hours per day of supply based on weighted average of connections	24	24
Ration of operating revenues/expenses	1.0	1.1

PDO#2 was to improve water resources management at the national level. However, the outcome indicator was designed as enhanced capacity of government to manage its water resources. This indicator was fixed as a ‘logical field’, that is, whether capacity was enhanced or not. This was very subjective in the absence of indicators to measure capacity. The PDO Indicator to measure this was ‘Water Resources Strategy Satisfactorily Completed’. It was not clear what a ‘completion’ of strategy meant. Since it was designed as a ‘logical field’, the measurement was to be done by a ‘Yes’ or ‘No’, without defining what a ‘Yes’ would mean.

Among the Intermediate Outcomes, more reliable water supply was an important outcome that the project sought to achieve at appraisal, and it was to be measured by the number of hours per day of water supply from different utilities. However, this indicator was dropped in 2014 due to measurement difficulty. This impaired the efficacy of the RF to measure the sustainability and service standard of water supply. The RF at project completion does not measure the ‘sustainable’ part of the objective. Initially, there were six intermediate outcome indicator numbers 13, 19, 20, 21, 22 and 23 that measured the average hours of water supply service in targeted water utilities, but these were dropped towards the project end in March 2014.

b. M&E Implementation

As a result of the joint efforts of the Bank team, the PMU, and MAIWD; the M&E Framework design was gradually refined and the system produced results on a regular basis. To reconcile the number of



beneficiaries of the various project components, the Bank team recommended implementing a baseline survey in Lilongwe and Blantyre and the use of data from the Population and Housing Census that took place in 2008. New indicators such as number of people reached through sanitation and hygiene messaging and additional quantity of water produced in utilities targeted by the project were added. In addition, to ensure accountability an indicator related to customer satisfaction was introduced.

The target values of most indicators were substantially reduced on the last date of the project implementation (10/31/2015). It appears that this was done to match final achievements against those indicators.

c. M&E Utilization

M&E systems were progressively developed and improved throughout the life of the project, accompanied by training of M&E personnel– all with support from project. The M&E team prepared quarterly monitoring reports which were regularly reviewed during Bank supervision missions. With the improved capacity for M&E and the regular tracking of project results throughout the life of the project, it was concluded by the ICR team that the M&E systems were generally robust and could be relied upon for the purposes of preparing the ICR.

M&E Quality Rating

Modest

11. Other Issues

a. Safeguards

The project had triggered OP 4.01 Environmental Assessment, OP 4.12 Involuntary Resettlement, and OP 7.50 Projects on International Waterways due to potential adverse environmental and social impacts related to the construction and rehabilitation of investments under components A, B and E. The safeguard screening category was S2, and the environmental screening category was B. Since the precise locations and potential localized adverse impacts could not be identified prior to appraisal, the borrower had prepared an Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF). These documents were to guide project implementers in identifying, assessing, mitigating and monitoring future potential adverse environmental and social impacts

As regards Environment Safeguards, no significant adverse environmental impacts were noted from any of the project financed works. Environmental issues generally received appropriate attention in the planning of large-scale civil works, such as the Kamuzu Barrage and Lilongwe Aqueduct. To help ensure satisfactory compliance of the NWDP-II with World Bank environmental safeguard standards, safeguards training workshops were organized and harmonized ESMF forms were distributed to each of the regional Water Boards. These forms were regularly filled out for each of the sub-projects and submitted to the World Bank. However, it was found that the environmental screening and record-keeping procedures required under the project's Environmental and Social Management Framework (ESMF) were not consistently followed by the regional Water Boards and the PMU for the smaller-scale civil works that do not require their own specific EIA report (most pipelines, water treatment plants, storage tanks, boreholes, and household connections),



particularly during the initial phase of the project implementation.

As regards Social Safeguards, during the initial phase of the project implementation, a considerable amount of construction supported by NWDP-II affected privately-owned land and personal assets, such as crops. Much of the construction that affected personal assets had not followed the criteria and procedures specified in the Resettlement Policy Framework (RPF) with regards to land acquisition, and impact on assets, and compensation. However, these issues were adequately resolved in time. To ensure more timely compliance with safeguards requirements, thereby promoting improved social and environmental outcomes, the Bank made it a requirement that all No-objection requests for civil works bidding documents be accompanied by safeguard documents such as a Resettlement Action Plan and Environmental Management Plan. As a step towards building improved capacity within the regional Water Boards and the PMU for addressing social safeguards issues, a training workshop was convened by World Bank environmental and social specialists in September 2010.

b. Fiduciary Compliance

Financial management audit reports of the NWDP II have indicated that in general the financial management system worked well as designed and satisfied Bank acceptable standards with minor problems in control and accountability, particularly during the initial phase of the project implementation. Regarding procurement, the Bank received two cases of procurement issues and declared them 'mis-procurement'. The first one was on a tender for pipes and fittings issued by Lilongwe Water Board for an amount of US\$828,205.94 equivalent, which was cancelled. The second one refers to a contract for supply and delivery of pipes and fittings for seven water supply schemes issued by MAIWD for an amount US\$278,160.0 equivalent, which was also cancelled and the Government agreed to procure materials to cover the mis-procured amount. Based on these experiences, the Bank carried out an in-depth fiduciary review of all the implementing agencies of NWDP II. The review was conducted to ensure that the flaws and weaknesses revealed in the two cases were not systemic and provided recommendations for remedial actions.

c. Unintended impacts (Positive or Negative)

Not Applicable

d. Other

At the stage of the project's inception, the coverage of water supply was 66 % of the total population in the country. It was evident that the remaining unserved people were largely vulnerable populations in low income urban areas and rural areas. The target at the end of 2012 was kept as 79 %; however, in 2012, the improved water supply access figure had reached about 86.2% in Malawi (meeting MDGs targets) due to various investments in the water sector including the NWDP II.

In Malawi, as in many parts of the developing world, traditionally women (and children) are mainly responsible for household water supply. The M&E reports of the project indicate that women constitute



about 51% of the beneficiaries of the project.

The project laid the foundation for a Sector Wide Approach (SWAp) in addressing challenges in the water and sanitation sector. The project facilitated development partner coordination, including supporting the operations of the Sector Working Groups, Technical Working Groups, and the Joint Sector Review.

However, full transition to a SWAp has not yet happened.

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Moderately Satisfactory	While the Relevance of Objectives is rated High and the Efficacy of one Objective and Efficiency are rated Substantial, the Relevance of Design and the Efficacy of the other Objective is rated Modest, Therefore, Development Outcome is rated Moderately Satisfactory.
Risk to Development Outcome	Substantial	Substantial	---
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	---
Borrower Performance	Moderately Satisfactory	Moderately Satisfactory	---
Quality of ICR		Substantial	---

Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.

The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons

A number of lessons have emerged from the ICR. Key ones include the following:

- Integrating catchment area protection initiatives and water supply interventions is important for the sustainability of a water development project.** The encroachment of catchment areas negatively impacts on the quality (and quantity) of water resources available for utilization. Water supply works may face increased operating costs due to the sedimentation resulting from inappropriate land use practices in their respective catchment areas. Thus, proper catchment management and water source protection is necessary for the sustainability of water supply investments
- Budget allocation decisions need to be in-tune with the sector priority constraints and challenges.** It



is obvious that sanitation coverage significantly lagged behind water supply coverage in Malawi, which was evident at the time of project preparation and appraisal. There was also disparity in water supply coverage between rural and urban areas.

3. Partial water system improvements may limit effectiveness of investments provided. Planning of water systems production capacity enhancement would be more effective if distribution capacity is also taken into account. This is in view of the fact that partial system improvements that do not address distribution or other aspects of the water systems are likely to be constrained by old and limited distribution networks.

4. Reaching vulnerable populations with sanitation and water supply services requires persistent commitment and innovative approaches. Inclusion of the vulnerable populations requires deliberate measures including targeting vulnerable households with specific assistance. In this regard, the project adopted some innovative approaches such as: (i) communities participating in sanitation technology selection so that it fit their circumstances; (ii) linking of Village Savings and Investment Loans to sanitation promotion activities, which was an effective mechanism to ensure that households were able to finance construction of improved latrines; and (iii) innovative sanitation promotion approaches such as targeting schools, arranging sanitation and hygiene promotion open days and involvement of local institutions such as sanitation clubs and mother clubs to facilitate the dissemination of messages and adoption of technologies on a larger scale.

One important lesson that has emerged from the ICR Review by the IEG is the following:

5. Formulation of PDOs should be consistent with project activities. The second objective of the project was formulated as improving water resource management at national level, whereas project activities were designed towards improving capacity of sector institutions and preparing water resource investment strategy, investment plan, and conducting diagnostic studies to assist decision making in the sector. Similarly, the first objective was formulated as improving access to sustainable water supply and sanitation services in target areas, but there were no activities designed to improve access to sanitation services. This led to an internally inconsistent Results Framework which affected efficacy of the project in achieving states project outcomes.

14. Assessment Recommended?

No

15. Comments on Quality of ICR

The ICR provides a comprehensive overview of project preparation and implementation. Its evidence is largely adequate, drawing from a variety of sources of data. It contains all necessary data and analysis. It provides lessons that are based on evidence and analysis. However, there were several shortcomings. It does not comment on the inadequacy of the results framework and M&E system in assessing the achievement of project objectives. It did not note that the stated project achievements in Urban water exceeded the target population. The ex post Economic Analysis used Willingness to Pay information as a proxy for benefits rather than Water Tariffs that were used at Appraisal. This led to an over-estimation of benefits.



a. Quality of ICR Rating
Substantial