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Report No: ICR00002837

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-42770 TF-93520)

ON A

CREDIT

IN THE AMOUNT OF SDR 46.0 MILLION
(US\$ 68.5 MILLION EQUIVALENT)

TO THE

REPUBLIC OF KENYA

FOR A

NATURAL RESOURCE MANAGEMENT PROJECT

July 22, 2014

Environment and Natural Resources (GENDR)
AFCE2
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective July 31, 2013)

Currency Unit = Kenya Shilling (Ksh)

Ksh 1.00 = US\$ 0.0115

US\$ 1.00 = Ksh 87

FISCAL YEAR

July 1 – June 30

ABBREVIATIONS AND ACRONYMS

ASDSP	Agricultural Sector Development Support Program
CBOs	Community Based Organizations
CDD	Community Driven Development
CFA	Community Forest Association
CPS	Country Partnership Strategy
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environment and Social Management Framework
ESMP	Environmental and Social Management Plan
FMP	Forestry Management Plan
FRA	Forest Resource Assessment
GDP	Gross Domestic Product
GIS	Geographic Information System
GoK	Government of Kenya
Ha	Hectares
IAs	Implementing Agencies
IDA	International Development Association
IE	Impact Evaluation
IP	Indigenous People
IP-ERS	Investment Program for the Economic Recovery Strategy for Wealth and Employment Generation
IPPF	Indigenous Peoples Planning Framework
IPMP	Integrated Pest Management Plan
IWRM	Integrated Water Resource Management
IWUA	Irrigation Water User Association
I&D	Irrigation and Drainage
KARI	Kenya Agricultural Research Institute
KenGen	Kenya General Electric Company
KFS	Kenya Forest Service
Ksh	Kenyan Shilling
KSS	Kenya Soils Survey
M&E	Monitoring and Evaluation

MCM	Million Cubic Meters
MENR	Ministry of Environment and Natural Resources
MEWNR	Ministry of Environment, Water and Natural Resources
MIS	Management Information System
MoU	Memorandum of Understanding
MTR	Mid Term Review
MoFW	Ministry of Forestry and Wildlife
MoWI	Ministry of Water and Irrigation
MRS	Mwea Rehabilitation Scheme
NACOFA	National Alliance for Community Forest Association
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organization
NIB	National Irrigation Board
NPV	Net Present Value
NRM	Natural Resources Management
NRMP	Natural Resources Management Project
NRP	National Resettlement Policy
O&M	Operations and Maintenance
PAD	Project Appraisal Document
PCO	Project Coordination Office (MoWI)
PDO	Project Development Objective
PF	Process Framework
PO	Partner Organizations
RAP	Resettlement Action Plan
REDD	Reducing Emissions from Deforestation and Forest Degradation
RP	Restructuring Paper
RPF	Resettlement Policy Framework
SCMP	Sub Catchment Management Plan
SDR	Special Drawing Rights
SHG	Self Help Groups
SLM	Sustainable Land Management
US\$	United States Dollars
VMG	Vulnerable and Marginalized Groups
VMGP	Vulnerable and Marginalized Groups Plan
WaSSIP	Water Supply and Sewerage Project
WRM	Water Resources Management
WRMA	Water Resources Management Authority
WRUA	Water Resources Users Association
WSCR	Water Security and Climate Resilience Project

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REPUBLIC OF KENYA
NATURAL RESOURCE MANAGEMENT PROJECT

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A. Basic Information			
Country:	Kenya	Project Name:	Kenya - Natural Resource Management Project
Project ID:	P095050	L/C/TF Number(s):	IDA-42770, TF-93520
ICR Date:	12/04/2013	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOVERNMENT OF KENYA (GOK)
Original Total Commitment:	XDR 46.00M	Disbursed Amount:	XDR 37.78M
Revised Amount:	XDR 41.15M		
Environmental Category: B			
Implementing Agencies: Ministry of Water & Irrigation (MWI), Ministry of Forestry & Wildlife (MFW) - Kenya Forest Service (KFS), National Irrigation Board (NIB), and Water Resources Management Authority (WRMA)			
Cofinanciers and Other External Partners: None			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	05/11/2005	Effectiveness:	12/10/2007	12/10/2007
Appraisal:	01/11/2007	Restructuring(s):	-	06/24/2011
Approval:	03/27/2007	Mid-term Review:	03/22/2010	03/31/2010
		Closing:	06/30/2013	06/30/2013

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Moderately Satisfactory
Overall Bank Performance:	Moderately Satisfactory	Overall Borrower Performance:	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation	Indicators	QAG Assessments	Rating

Performance		(if any)	
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Satisfactory		

D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Central government administration	5	5
Forestry	31	39
General agriculture, fishing and forestry sector	6	6
Irrigation and drainage	58	50
Theme Code (as % of total Bank financing)		
Other rural development	40	20
Rural services and infrastructure	20	20
Water resource management	40	40
Land management and administration	0	20

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	Makhtar Diop	Hartwig Schafer
Country Director:	Diarietou Gaye	Colin Bruce
Practice Manager:	Jonathan Kamkwalala / Magda Lovei	Karen McConnell Brooks
Project Team Leader:	Stephen Danyo	Christine Cornelius
ICR Team Leader:	Stephen Danyo	
ICR Primary Author:	Juan Morelli	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The PDO stated in the 2007 Financing Agreement was “to enhance the Recipient's institutional capacity to manage water and forest resources, reduce the incidence and severity of water shocks such as drought, floods and water shortage in river catchments

and improve the livelihoods of communities participating in the co-management of water and forest resources.” The PAD had different PDO statements.¹

Achievements under the project were to be measured at PDO level by three indicators to assess the implementing entities’ success in achieving their institutional mandates: (a) sediment load in rivers in project intervention areas; (b) forest areas under approved forest management plans; and (c) number of community level interventions rated satisfactory or higher by the participants.

Revised Project Development Objectives (as approved by original approving authority)

The PDO was revised during a restructuring in June 2011 as follows: “to improve the management of water and forest resources in selected districts.”

Indicators were updated that were considered more easily measurable, achievable within the direct influence and scope of project, and more closely tied to the PDO statement.

(a) PDO Indicator(s)

Indicator (original and revised)	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
PDO Indicator 1:	<i>Percent reduction in sediment load in rivers and water reservoirs in project intervention areas (dropped)</i>			
Value (quantitative or qualitative)	Not measured	20%	Dropped	Not measured
Date achieved	01/31/2007	06/30/2013	06/24/2011	06/30/2013
Comments (incl. % achievement)	Indicator dropped at 2011 project restructuring. The indicator was dropped partially because the baseline was not defined within the first 2 years of implementation, and technical and institutional challenges associated with sediment control have deterred progress in implementing sediment reduction interventions. In addition, sedimentation is affected by exogenous variables. Holding a project accountable for sediment reduction is difficult to attribute to the direct sphere of project control. While the project could help measure sedimentation rates, it should not be a PDO level indicator as the project was not in a position to control all factors contributing to changes to sedimentation rates.			
PDO Indicator 2:	<i>Area of forests in the project intervention areas being managed according to approved forest management plans (FMP)</i>			
Value (quantitative or	0 ha	300,000 ha	300,000 ha	320,000 ha

¹ The PDO in the PAD Data Sheet was similar to that in the Financing Agreement but not exactly the same, while the PDO stated in the main text of the PAD and its results framework was: “to enhance the institutional capacity to manage water and forest resources in a sustainable and participatory way.”

qualitative)				
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Target exceeded by 106.7% through Nandi, Uasin Gishu and West Pokot Management Plans. Awareness on participatory forest management was also conducted in Nyeri and Mt. Elgon with support for the development of their Participatory Forest Management Plans (FMP).			
PDO Indicator 3:	<i>(A) Investments on CDD micro-projects financed (US\$ value) and (B) percent of schemes that are rated as satisfactory or higher by the participants)</i>			
Value (quantitative or qualitative)	US\$0 (0%)	US\$5,000,000 (80%)	US\$5,000,000 (Dropped)	US\$5,650,000 -
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	172 CDD micro-projects financed under the Project invested 113% of the budgeted amount; and the percent of satisfactory or higher ratings by beneficiaries was not measured. However, qualitative evidence shows high satisfaction (see section 3.6 of the report) and 51% of members were female.			
PDO Indicator 4:	<i>Increased revenue from water use charges collected by WRMA (Ksh)</i>			
Value (quantitative or qualitative)	Increase by Ksh 25 million (total 267 million)	Increase by Ksh 36 million	N/A	Increased by Ksh 37 million (total 366 million)
Date achieved	01/31/2011	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Indicator added at 2011 project restructuring. This indicator measured WRMA's capacity to monitor and regulate water use, using the proxy of increasing revenue collection. The target, which is cumulative, was exceeded as large users like Ken Gen were brought into compliance. The total revenue now stands at Ksh 366 million, from a baseline total of Ksh 267 million, which was made possible by regular attainment of increases in revenue). Further increases seem to be more difficult to attain unless enforcement measures are fortified.			
PDO Indicator 5:	<i>Community/User Groups collaborating with the GoK institutions in water and/or forest activities (#, % women)</i>			
Value (quantitative or qualitative)	40 community-user groups (42 % women)	170 community-user groups (50% women)	N/A	172 community-user groups (50.5 % women)
Date achieved	01/31/2011	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Indicator added at 2011 project restructuring. This indicator measures NRM co-management advances in sectors supported by the Project. Target exceeded. Groups are strongly engaged and participating in NRM in catchment areas, forests and irrigation schemes jointly with WRMA, KFS and NIB.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
IOI Indicator 1:	<i>Number of micro-catchment action plans developed by WRUAs and approved by WRMA</i>			
Value (quantitative or qualitative)	0	30	30	51
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Target surpassed by 70%. 51 WRUAs have their Sub-Catchment Management Plans (SCMP) approved by WRMA under implementation. WRMA continues facilitating and overseeing the development, approval and implementation of SCMPs through WRUAs			
IOI Indicator 2:	<i>Percent of households adopting recommended land use practices in targeted catchments</i>			
Value (quantitative or qualitative)	20%	80%	Dropped	Dropped, Not measured
Date achieved	01/31/2007	06/30/2013	06/24/2011	06/30/2013
Comments (incl. % achievement)	Indicator dropped at project restructuring. Following SCMPs, improved SLM practices were to be applied for reducing erosion and sedimentation of reservoirs. However, there was no defined way to measure households adopting improved SLM practices.			
IOI Indicator 3:	<i>Area under irrigation in project intervention areas (hectares)</i>			
Value (quantitative or qualitative)	0 (improved) 0 (new)	3500*	9427 (improved) 4000 (new)	9500 (improved) 0 (new)
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Partially achieved. The new construction of the Lower Nzoia Irrigation scheme was not implemented under NRMP and is being financed under the new IDA-supported Water Security and Climate Resilience Project (WSCRCP) approved in 2013. As such, no new irrigated area was delivered by NRMP for the Lower Nzoia scheme. For the Mwea irrigation rehabilitation works, however, 9500 ha has been improved by rehabilitating 7250 ha and expanding 1250 ha into out-grower areas. This achievement is more than the planned target of 9427 ha. * Note: the PAD's results framework's indicator did not distinguish between new irrigation and rehabilitated irrigation schemes and listed the target as a generic 3500 ha. The PAD text, however, gave a rehabilitation target of 12,800 ha and an expanded irrigated area target of 3500 ha. The RP's results framework distinguished explicitly between the two and the Project tracked both to closure.			
IOI Indicator 4:	<i>(A) Number of users benefitting from improved irrigation delivery service (dropped during restructuring); indicator was revised to: (B) Percent satisfied with O&M service</i>			
Value (quantitative or qualitative)	1,700 54%	30,000 -	Dropped 80%	Dropped 95%
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013

Comments (incl. % achievement)	Indicator A was dropped during project restructuring. Nevertheless, the client revised it to indicator B (<u>not an official project indicator</u>) which was then tracked through Project closure. This indicator percentage target was exceeded. Rehabilitation of Mwea and capacity building of 4 schemes helped IWUAs to assume O&M and improve water distribution.			
IOI Indicator 5:	<i>% cost recovery for O&M of the project's irrigation investments</i> (dropped during restructuring but measured by client through project closure)			
Value (quantitative or qualitative)	85%	70%	--	95%
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Target achieved. This indicator was tracked through project closure although it was dropped during the 2011 project restructuring. At the time of the restructuring, irrigation rehabilitation activities were recalibrated to focus on Mwea due to lack of readiness and budget. The new Lower Nzoia could not be built and was moved to a new IDA-financed project, the WSCRIP.			
IOI Indicator 6:	<i>Implementation of KFS five year Strategic Plan activities supported (% of activities)</i>			
Value (quantitative or qualitative)	0	70%	60%	80%
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	The strategic plan was launched in 2009 and KFS institutional capacity was significantly enhanced through sector reforms, training of staff, infrastructure, vehicles, and increased revenues, aiming to support participatory forest conservation and extension.			
IOI Indicator 7:	<i>(A) Production forests whose management has been transferred to private sector (# transfers); and, (B) Number of new forest investments requests as a result of improved investment climate (# requests)</i>			
Value (quantitative or qualitative)	0 transfers 0 requests	5 transfers 50 requests	5 transfers dropped	0 transfers dropped
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Indicator B was dropped at restructuring. The target for indicator A was not achieved by the end of the project period. Guidelines for transfer of management of forests had been developed but the process was stopped by an NGO, the National Alliance of Community Forest Associations, through a court injunction in 2012. The court ruling was ultimately delivered in June 2013 in favor of the petitioner.			
IOI Indicator 8:	<i>New area brought under forest cover in project intervention areas</i>			
Value (quantitative or qualitative)	0 ha	2,500 ha	3,500 ha	7,124 ha
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Target surpassed by 285 percent (from original target) and more than 100% (from the achievement at the time of the 2011 project restructuring). The achievements were attained through the involvement of the local forest-based communities organized in Community Forest Associations (CFAs) to supply seedlings and labor paid for by the project. Average survival rate is 75% which is sufficient to restore the degraded sites.			
IOI Indicator 9:	<i>Number of livelihood based micro-projects supported.* (# CBOs, % women members)</i>			
Value (quantitative or qualitative)	0 -	500 -	500 (50%)	713 (51%)

qualitative)				
Date achieved	01/31/2007	06/30/2013	06/30/2013	06/30/2013
Comments (incl. % achievement)	Under Component 3 only, a total of 713 CBOs (142% over target) with a membership of 119,771 citizens (51% women) have been mobilized and trained to implement their own discrete CDD micro-projects; of these 706 were financed out of 3332 proposals received. 4,721 CBO leaders (2077 women) were trained on governance, financial management, and procurement, M&E and reporting.			
	* Note: The RP slightly revised the indicator as above, substituting the word "supported" for the word "completed" that appears in the PAD. The target of 500 remained the same in the PAD and RP.			

G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	11/20/2007	Satisfactory	Moderately Unsatisfactory	0.00
2	05/20/2008	Moderately Satisfactory	Moderately Unsatisfactory	0.30
3	11/24/2008	Moderately Satisfactory	Moderately Unsatisfactory	3.85
4	05/26/2009	Moderately Satisfactory	Moderately Unsatisfactory	12.50
5	06/30/2009	Moderately Satisfactory	Moderately Satisfactory	12.50
6	08/13/2009	Moderately Satisfactory	Moderately Satisfactory	12.50
7	12/15/2009	Moderately Unsatisfactory	Moderately Unsatisfactory	12.50
8	05/23/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	18.50
9	06/29/2010	Moderately Satisfactory	Moderately Satisfactory	20.14
10	10/23/2010	Moderately Satisfactory	Satisfactory	25.71
11	03/02/2011	Moderately Satisfactory	Satisfactory	30.89
12	05/30/2011	Moderately Satisfactory	Moderately Satisfactory	30.89
13	07/20/2011	Moderately Satisfactory	Moderately Satisfactory	30.89
14	10/07/2011	Moderately Satisfactory	Moderately Satisfactory	30.89
15	12/24/2011	Moderately Satisfactory	Moderately Satisfactory	30.89
16	01/23/2012	Moderately Satisfactory	Moderately Satisfactory	32.28
17	09/26/2012	Moderately Satisfactory	Moderately Satisfactory	43.81
18	04/24/2013	Moderately Satisfactory	Moderately Satisfactory	49.92
19	06/30/2013	Moderately Satisfactory	Moderately Satisfactory	55.75

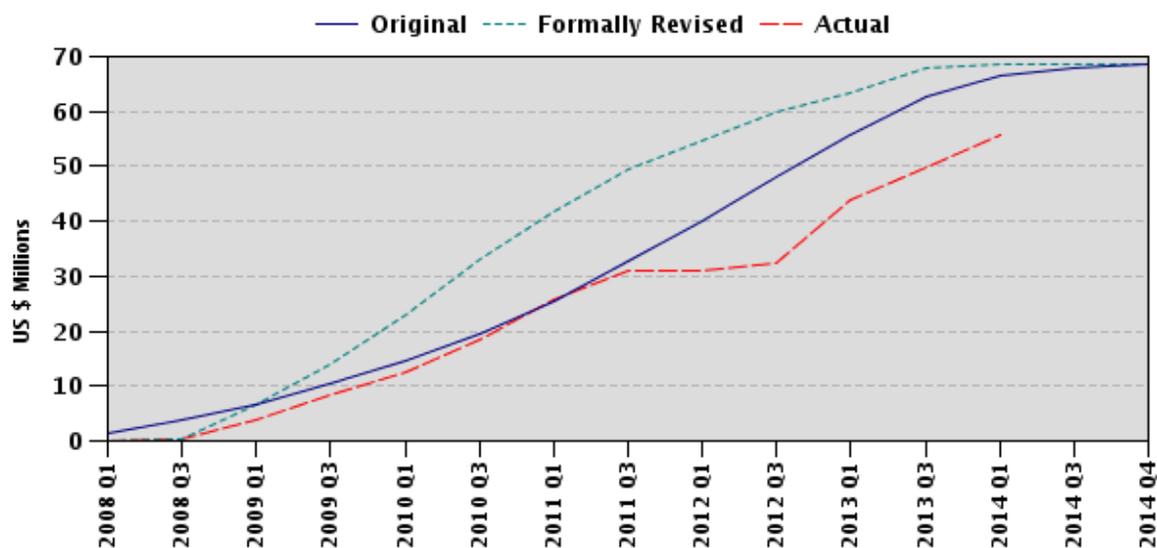
H. Restructurings (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
06/24/2011		MS	MS	30.89	Restructuring was to adjust project outcomes so that they were within the control of, and

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
					could be delivered by the implementing agencies. It included simplifying PDOs, changing outcome indicators and reallocating 21 percent of credit, increase disbursement percentages by category and to eliminate outdated covenants.
06/20/2013		MS	MS	55.75	Credit proceeds totaling US\$7.24 million were cancelled as they would not be spent before closing due to absorptive capacity limitations. The remaining funds were also reallocated among disbursement categories.

I. Disbursement Profile

As of December 4, 2013, disbursement was 92%. Also, US\$7.24 million was cancelled in the June 2013 restructuring, which does not show on the graph taken from the system:



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. *At appraisal in 2007, Kenya had one of the most degraded natural resource bases in the region, while nearly 70% of the population was living on 12% of total land area classified as medium to high potential for agriculture and livestock production. The growing population and increasing demand for land, energy, food and water was resulting in tremendous pressure on natural wealth, impacting economic growth and poverty reduction. A majority of the rural poor are reliant upon forest, cropland, grazing lands, and water resources for their livelihoods, which is directly affected in both the short and long term by degradation of natural wealth including soil erosion, forest loss and fragmentation, and greater variability of water flow and reduced water quality.*

2. *In 2007, Kenya's water scarcity – which continues today – presents challenges for managing water, land, and forest resources for multiple uses. There are five main characteristics that illustrate the difficulty of water management in Kenya: First, the country has a limited endowment of just 647m³ per capita per year.² Second, the annual rainfall is highly variable in space and time and fluctuates annually by up to 30%. Changes in climate will likely amplify this variability. Third, the major rivers of Kenya originate from only five specific forested mountainous areas, and it is widely recognized that the management of these “water towers” has consequences throughout Kenya. Fourth, almost 80 % of Kenya is arid or semi-arid, where groundwater is often the only or the primary freshwater source. Fifth, over half of Kenya's water resources are shared with its neighbors, requiring trans-boundary management. Water resources therefore must be managed cooperatively to avoid exacerbating or creating tensions and ensure that the benefits of the nation's water are available to all.*

3. *Kenya's endowment of water, forests, and soil is one foundation for much of the country's economic activity, but is vulnerable to natural shocks, mismanagement, and depletion. The 1997-2000 El Niño / La Niña episodes cost the country 290 billion Ksh, about 14% of GDP during the three year period³. In response, the 2002 Water Act provided for the establishment of a new institutional framework for water resources management, chiefly through the Water Resources Management Authority (WRMA) and Water Resource Users Associations (WRUAs). Acute problems in forest management led the Government of Kenya (GoK) to prepare a new Forest Policy and Forest Law, approved in July 2005, placing accountability for forest management in the Kenya Forest Service (KFS) and Community Forest Associations (CFAs) as decentralized partners. The GoK requested Bank support in implementation of the new policy, which included institutional reforms and the creation of incentives for the private sector and local communities to participate in forest co-management and invest in forest conservation for multiple livelihood options upstream and downstream in sensitive catchments.*

1.2 Original Project Development Objectives (PDO) and Key Indicators

²In mid-2013 a very large aquifer was discovered in the Turkana region that will expand these resources.

³ World Bank (2004) Towards a Water Secure Kenya: Water Resources Sector Memorandum and Mogaka et al (2006) Climate Variability and Water Resources Degradation in Kenya: Improving Water Resources Development and Management, World Bank Working Paper No. 69.

4. *The PDO in the 2007 Financing Agreement was “to enhance the Recipient's institutional capacity to manage water and forest resources, reduce the incidence and severity of water shocks such as drought, floods and water shortage in river catchments and improve the livelihoods of communities participating in the co-management of water and forest resources.”* The PDO in the PAD Data Sheet differed slightly, while the PDO in the PAD was: “to enhance the institutional capacity to manage water and forest resources in a sustainable and participatory way.”

5. Achievements under the project were to be measured at PDO level by three indicators to assess the implementing entities’ success in achieving their institutional mandates: (a) sediment load in rivers in project intervention areas; (b) forest area under approved forest management plans; and (c) number of community level interventions rated satisfactory or higher by the participants.

1.3 Revised PDO and Key Indicators

6. *In June 2011, the PDO was revised as: “to improve the management of water and forest resources in selected districts.”* Project restructuring clarified the ambiguity between the Results Framework and the PDO as stated in project documentation.

7. The Restructuring Paper (RP) stated that the project “was not providing financing for activities which were designed to actively reduce water shocks in river catchments in the project areas,” addressing what the Mid Term Review (MTR) team considered an overly ambitious objective.

8. Key indicators were then adjusted to better measure progress toward the achievement of the expected outcomes, which included: (i) replacing indicators that lacked baseline values⁴; and (ii) changing some indicators to align to the revised objective. The revised indicators are more easily measurable, achievable within the Project scope, more cost-effective, and more closely tied to the PDO.

1.4 Main Beneficiaries

9. *Direct beneficiaries were not quantified in the PAD or the RP, but in this report are clustered into five groups: (i) farmers benefitting from irrigation schemes, (ii) diverse rural residents benefitting from CDD activities in targeted catchment areas,⁵ (iii) forest communities benefitting from CDD activities and improved forest management, (iv) Athi Water Service Board’s priority water supply dams (Sasumua and Ndakaini) that benefit from bathymetric surveys of the dam and catchment management, and (v) the Implementing Agencies (IAs) including the National Irrigation Board (NIB), WRMA and the KFS, that benefit from staff training and support for institutional reforms.*

⁴ Two out of four original PDO indicators were substituted: (i) “reduction of sediment load in rivers and reservoirs in project areas” substituted by “increased revenue from water use charges”; and (ii) “micro-projects that are rated satisfactory or higher by the participants” substituted by “community/user groups collaborating with GOK institutions on water and/or forest activities (% of which members are women)”.

⁵ The project was located in the Upper Tana Catchment which is part of the Tana River Basin draining into the hydro-dams Masinga and Kamburu. The area is confined to West and South of Mt. Kenya and East and South of the Aberdares including the areas around Masinga and Kamburu dams.

10. *There are millions of people who indirectly benefit from the project intervention, such as farmers downstream from the forested water towers (such as the Lower Nzoia), users of power from the Masinga and Kamburu dams, and Nairobi residents dependent on Sasumua and Ndakaini dams for water supply (which are downstream from the work carried out in the Upper Tana catchment).*

1.5 Original Components

11. *The project had four components: (i) Water Resource Management and Irrigation; (ii) Management of Forest Resources; (iii) Livelihood Investments in the Upper Tana Catchment; and (iv) Management and Monitoring and Evaluation (M&E).* According to the PAD, the first two components aimed to support the legal and institutional reforms contained in the newly approved legislation at the time of appraisal, and develop some investments in the catchment areas. The third component aimed to provide assistance to incentivize communities to participate in NRM, while the fourth component was designed to support project administration and comprehensive M&E.

12. ***Component 1, Water Resource Management and Irrigation*** (US\$44.5 million) included two sub-components as follows:

1.1. Strengthening the capacity of the WRMA including direct investments in the Upper Tana Catchment (US\$15.5 million). This sub-component supported implementation of laws, policies, and regulations related to WRM, following promulgation of the 2002 Water Act. WRMA's 6 Regional Offices and its 26 sub-regional offices and their administrative and technical capacities would be strengthened to enable the new agency to equip itself and undertake its core business, including river and ground-water monitoring to regulate the use of water, and to begin to reverse the widespread degradation of catchments jointly with the Water Resource Users Associations (WRUAs).

1.2 Consolidation of irrigation reforms and investments (US\$29 million) supported (i) infrastructure development, (ii) reforms at NIB, preparation of an Irrigation Strategy and Business Plan, and inputs into the Irrigation Act, and (iii) the creation and strengthening of participatory Irrigation Water User Associations (IWUAs).

10. ***Component 2, Management of Forest Resources*** (US\$22.4 million) aimed to improve forest governance, participation and investment by stakeholders. The joint management with local communities and private sector was consistent with reforms in other sectors. The Ministry of Environment and Natural Resources (MENR) and the newly established Kenya Forest Service (KFS) would be supported to develop a transparent and accountable regulatory and institutional framework. Activities included:

2.1 Forest sector institutional reforms (US\$10.1 million): This subcomponent aimed to transform the Forestry Department into a semi-autonomous KFS, enhancing governance and improving revenues for forest management. The design and implementation of the strategic plan would enable a socially and environmentally sound implementation of the Forestry Act. With the adequate base information and the development and management of forest plantations the protection of forests would be improved. To address the lack of reliable data on forest resources it was envisaged

that the project would conduct a phased Forest Resource Assessment (FRA) including a detailed inventory of plantations and a rapid assessment of indigenous and farm forests. Training and sensitization of staff, together with provision of equipment and other infrastructure support would facilitate technical and cultural change towards an effective, transparent and accountable KFS administration.

2.2 Community participation and benefit sharing (US\$9.6 million) would articulate rights and responsibilities of stakeholders, defining processes for developing arrangements and approving management plans and benefit-sharing mechanisms. Initial focus was on identifying and prioritizing partnership models to implement the legislative framework and improve benefit-sharing in Kakamega, Mt.Elgon, the Aberdares and Upper Tana.

2.3 Community and Private Sector Investments in Commercial Forestry (US\$2.7 million) aimed to revitalize Kenya's forest industries in line with the Forestry Act, and ensure closer integration between forest products manufacturing, harvesting and forest management goals, and increase rural income. Strengthening institutional support services would create an enabling environment for community and private sector involvement in development and management of production forests.

11. ***Component 3, Livelihood Investments in the Upper Tana Catchment*** (US\$6.2 million), supported a Community Driven Development (CDD) approach for managing catchments and forest perimeters. It aimed to develop livelihood enhancing schemes supporting the natural resource base, as afforestation, private sector/community partnerships for timber, fuel-wood and pulp production, tree seedlings, introduction of productivity-enhancing techniques of agro-forestry or conservation farming, so on.

12. ***Component 4, Management and M&E*** (US\$4.9 million) promoted an integrated approach to management and measuring results. A Project Coordination Office (PCO) in the MoWI would coordinate activities, coordinate and carry out M&E and fiduciary requirements, and develop a communication strategy. Activities supported under component 4 were also designed to address issues of resource rights, conflict over land and resettlement, envisioned as potentially necessary for the irrigation infrastructure. US\$1.6 million was budgeted for the GoK to develop a set of transparent safeguard instruments to mitigate current and future conflicts over land, customary rights and the rights of indigenous people. In addition, preparation of a National Resettlement Policy (NRP), outside of Project support, would allow these processes to be mainstreamed into GoK policy. The GoK's existing draft Land Policy at the time was not fully able to address land and legacy related issues including resettlement, mainly due to the number of stakeholders to be consulted. The safeguard instruments were to be developed for the NRMP and other Bank-financed projects at the time based on extended, substantive consultative processes; these frameworks include the Indigenous Peoples Planning Framework (IPPF)⁶, Process Framework (PF), Resettlement Policy Framework (RPF),

⁶ Indigenous people were later referred to as Vulnerable and Marginalized Groups (VMGs) upon request from the GoK in line with the 2010 Constitution of Kenya which uses the term "Vulnerable Groups" and "Marginalized Groups" instead of "Indigenous People." The use of the terminology VMGs does not in any way diminish the benefits and protections available under the OP4.10 policy to the people who meet the eligibility criteria accorded to Indigenous Peoples under OP 4.10.

and accompanying action plans if necessary. The PAD stated that because specific intervention sites were not known at the time of project approval, resettlement action plans (RAPs) would only be developed (i) when specific intervention sites were identified, and (ii) if a RAP was necessary for a specific site.

1.6 Revised Components

13. *The 2011 project restructuring addressed the factors delaying implementation but maintained the project's component structure.* Twenty percent (SDR 9.49M) of the credit proceeds were reallocated to cover: (i) the higher than estimated costs for irrigation investments and related technical consultancies; (ii) the investments for management of sedimentation and water flow⁷; (iii) the incremental field operating costs for WRMA, NIB and KFS; and (iv) up to 100 percent of the cost of all expenditure categories except civil works, including taxes. The reallocation of project funds among existing categories covered cost overruns on some components, in particular Component 2 (Forest resources), where implementation progress had become affected by land and legacy issues that became apparent after the project had begun implementation.

14. *In subcomponent 1.1 (Strengthening capacity of WRMA),* design flaws and delays in conducting the physiographic baseline study, and the technical and institutional challenges associated with implementation of sediment control measures, led to the introduction of fast-track execution of small-scale investments directly by WRMA, such as small check dams and flow regulation structures. This investment approach was considered necessary since the WRUAs were embryonic, slowing preparation of sub-catchment management plans (SCMPs) and the proposed CDD livelihood schemes. Technical assistance was provided for priority pilot groundwater management initiatives (Kikuyu Springs) and a new groundwater management policy.

15. *Subcomponent 1.2 (Irrigation investments)* narrowed its focus to include: (i) the design and construction of the new Lower Nzoia Irrigation Scheme; (ii) rehabilitating the Mwea system, dropping rehabilitation of Ahero, West Kano and Perkerra systems but maintaining the capacity building of their IWUAs; and (iii) the reform process at NIB.

16. *Component 2 (Forest resources)* was also revised to (i) strengthen the participatory approaches for forest dependent people including indigenous people, and (ii) strengthen the climate change dimensions of forest management, in line with the GoK's adoption of a National Climate Change Response Strategy in April 2010. Funds supported: (i) the preparation and implementation of what would be the equivalent of Indigenous People's Plans in Kenya, the VMG Plans, which include community-driven livelihood activities and which were built upon the Social Assessment completed in June 2010; (ii) expansion of technical assistance on participatory approaches to forest management, (iii) building of capacity of Community Forest Associations (CFAs) and other local groups including indigenous people; (iv) provision of expertise for GIS/remote sensing; (v) building of capacity of the GoK and other stakeholders on

⁷ The project would construct some small to medium sized water storage structures and check dams in the upper catchment of the Tana River, which is Kenya's largest river and supplies water to hydroelectric dams producing 80% of Kenya's electricity, and is a key source of Nairobi's water supply.

REDD⁸ readiness such as by carrying out assessments on benefits sharing and decentralized forest management; and (vi) rehabilitation of existing infrastructure.

17. *Under Component 2, the project struggled with issues related to OP/BP 4.10 since its start-up.* To improve project implementation with respect to OP4.10 and OP4.12, the following actions were agreed to, in addition to the above activities: (i) preparation of Vulnerable Marginalized Groups Plans (VMGPs) which would include livelihood and CDD type investments based on the Social Assessment completed in June 2010 under a deeply consultative process; (ii) advancing the Process Framework (PF) that defines customary rights and grievance redress mechanisms; and (iii) because land and legacy issues are far beyond the remit of KFS, the restructured project aimed to provide technical assistance to facilitate the establishment and operation of an Inter-Ministerial Task Force on Land and Legacy Issues, to be chaired by the Ministry of Forestry and Wildlife, in liaison with relevant ministries such as the Ministry of Lands and the Offices of the President and Prime Minister. Rather than developing a National Resettlement Policy, the project would then support the work of the Task Force, facilitating the provision of inputs into the ongoing review of laws and regulations as part of the new Constitution's implementation process to ensure that land tenure and user rights of indigenous people were adequately being taken into account.

1.7 Other significant changes

18. *Due to the slow start up and delays arising from the turmoil following the disputed December 27, 2007 general election, dated covenants were also amended to be more realistic and achievable.* Two covenants were dropped as their activities had been or were being addressed by the GoK⁹. In addition, due to persistent delays in obtaining tax exemptions for the project, financing parameters were changed to cover 100% for all categories, excluding civil works. The increase included incremental operating costs to support the set up and operationalization of systems to improve the generation of revenues for the new implementing agencies (IAs: KFS, NIB, WRMA) in the longer term, facilitating sector sustainability. The restructured project also clarified area coverage at district level in the Upper Tana Catchment (Aberdares), Mt. Elgon, and Kakamega to include Cherangani Hills, Nandi Hills, and Lower Nzoia.

19. *A second restructuring was approved just before project closing to cancel US\$7.2 million (SDR 4.86 million) and reallocate proceeds among existing categories.* Some activities would not be completed before project closing due to absorption issues.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

⁸ Reducing Emissions from Deforestation Forest Degradation.

⁹ Covenants dropped included: (i) *conducting a rapid assessment of forest resources*, as it was taken by a consultancy financed by the Government of Japan as part of the REDD readiness process in Kenya; and (ii) *review of all relevant land related policies and laws and identify areas in need of harmonization with respect to resettlement as part of the development of a Resettlement Policy*, being reviewed by the GoK.

20. *The project was prepared in consultation with development partners and key stakeholders including donors, private sector and communities.* The strategy of addressing both forest and water resources in the project design is sound and remains relevant today given the water provisioning and filtering services provided by forest ecosystems. The project design was based on a sound analysis of the problems, and a well-balanced combination of interventions. However, it was highly under-budgeted for the planned irrigation civil works, and for implementing the ambitious sector and institutional reforms. It was too optimistic in the expected targets and overly ambitious (in the IPPF) with respect to resolving and mitigating long-lasting land and forest conflicts. As noted at restructuring, some of the indicators, such as sedimentation rates, were not achievable or easily measured or directly attributable to the project intervention.

21. *The Project design aimed at tackling and sustainably managing water and forest resources through strengthening the new parastatals, developing the information base, enhancing the legal and regulatory framework, financing investments, and engaging communities in co-management and community-driven micro-projects.* It was relevant to the CAS and GoK priorities in that it addressed natural resource degradation that disproportionately affects the poor¹⁰. The focus on critical watersheds including the Aberdares, source of much of Nairobi's water supply, was sound. The three core Project components together sought to lay the groundwork for integrated watershed management, given the degradation caused by encroachment into forests, cultivation on steep hillsides and river banks, and use of poor farming methods combined with the development of irrigation. One opportunity lost, however, was a set of activities to improve basin level management, to better link resource planning and monitoring throughout the watershed from the montane forest of Kenya's water towers to the command area of downstream irrigation schemes. The project was well placed to more actively pursue basin scale approaches given that the project design emphasized community level engagement with irrigation users, water user associations, community forest associations, and indigenous peoples groups (largely located in and around forests). Nevertheless, at smaller catchment scales, the project's design focus on participatory resource management with communities and the identification of effective ways for achieving integrated actions was well conceived – such as through the promotion of sustainable land management (SLM) practices so that conservation and production goals could converge to enhance livelihoods and prevent erosion.

22. *However, some expected results and targets were unrealistic to achieve within the planned timeframe given the lack of experience, the limited scope of direct project influence, and the low estimated budget.* Unrealistic targets included: (i) reducing by 20% the sediment load in rivers and reservoirs; (ii) 80% of households adopting recommended land use practices within the targeted catchments; (iii) adoption of payment for environmental services (PES) in 50 schemes; and (iv) 50 new forest investment requests from communities and private sector due to the improved investment climate.

¹⁰ Natural resources are critical to the livelihoods of the nearly 70% of Kenyans who live in rural areas and also to the urban poor, who use wood and charcoal for their fuel. Population pressures, deforestation and ecosystem degradation, unsustainable resource use and corruption were threatening vulnerable habitats.

23. *Weak readiness for implementation affected early progress.* Factors that contributed to the delay included: the lack of detailed designs for the irrigation investments; the unclear responsibilities between NIB and MoWI for reform deliverables; and linking triggers for investments by NIB to progress of reform steps at the sector level. This was exacerbated by post-election violence in 2007-2008.

24. *Project documentation suffered from disconnects in the phrasing of the PDO, as mentioned earlier, and in the scope of project activities.* First, as noted in the Restructuring Paper (June 2011), and in the Management Response to the Request for Inspection (2013), the IPPF promised more than the project itself could realistically address. Given the scope and timeframe of the project, the original project design was overly ambitious concerning the resolution of long-standing land and forest conflicts . This has contributed to difficulties in maintaining a clear distinction between project activities and activities outside the project, and blurred the line defining appropriate boundaries of project safeguard obligations in forested intervention areas. The approach set forth in the IPPF on resettlement and restoration of livelihoods was overly ambitious and difficult to implement given the scope of NRMP's forest component and the limited mandate of the implementing agency, the KFS. This view implies that the original project design underestimated the complexity of the project context. Second, the disconnect between the Financing Agreement and PAD on the PDO phrasing are detailed earlier in this report.

25. *The quality of the project at entry is rated moderately unsatisfactory,* while recognizing that the 2011 restructuring was a serious attempt to correct the above flaws.

2.2 Implementation

26. *Project startup was affected by exogenous factors.* The project became effective on December 10, 2007, and was immediately affected by the turmoil following the disputed general election of December 27, 2007. Because of the delays in all components, the implementation performance rating was downgraded to moderately unsatisfactory until mid-2010. During the same period, Kenya's current account deficit grew from 4.5% of GDP in 2008 to 7.5% in 2009. These issues were exacerbated by high international food and fuel prices in 2008, the global financial crisis in 2008-09, and four consecutive droughts arising from failures in seasonal rains. Taken together, these factors all affected all GoK activities including the Project. In fact, Kenya's economic growth hit a low of 1.7% in 2008 and 2.5% in 2009, despite Vision 2030's projection of 10% growth by 2012.

27. Against this backdrop, budgets for the IAs were lower than originally envisaged, slowing down activities across the board. The development of the required information base, the enhancement of the legal and regulatory framework, and the organizational arrangements for executing the participatory processes including organizing IAs and CBOs to develop and implement sub-catchment management plans and forest management plans, O&M of irrigation systems, and CDD schemes, were all slowed down, in some cases affecting the ability to deliver – such as the construction of the Lower Nzoia Irrigation scheme which was transferred to another IDA-financed project approved in 2013 based on the design developed under NRMP.

28. An early MTR was carried out in March 2010 to assess the causes of delays and identify remedies, recommending the restructuring described above. The project restructuring also amended some project activities and outcomes so that: (i) they were brought within the control of, and could be delivered by, the IAs; and (ii) could be achieved by project close. Still, after restructuring, some difficulties appeared in clearly defining the scope of project activities, such as the historic land and legacy issues discussed below.

29. *The historical legacy of conflicts and tensions over land issues involving indigenous people and other poor and vulnerable local rural communities was aggravated by the aftermath of the post-election violence in 2007 which brought internally displaced people into the forest. This situation, combined with poorly understood limits of direct Project influence, resulted in complaints from a handful of people.* As a result, NRMP became a high-risk project on the corporate watch list. The on-going, decades-old disputes on land rights and land use in forested areas home to the Ogiek and Sengwer/Cherangani communities became an issue that the Project attempted to help address to the limited extent it was able to. Land rights and access issues go beyond the forestry sector, the mandate of KFS, and beyond the project scope, influence, and time-span, yet the NRMP's safeguard instruments, namely the IPPF, committed the project to address these issues, which the Project was not equipped to do as noted above in the assessment of quality at entry. From early implementation, complaints have been brought up by a handful of people identifying themselves as representatives of indigenous peoples' groups in and around highland forests. In response, the documentation shows that the GoK and Bank responded quickly, thoroughly and efficiently to complaints through letters, phone calls, meetings, workshops and site visits. Site missions to these forested areas averaged one every 10 weeks, compared to the usual 6 months for most projects.

30. *The extra attention and supervision budget given to these issues affected overall project implementation, making it difficult for IAs and the Bank to attend to other issues.* For example, the Project encountered challenges related to a lack of clarity on the standing within communities of various individuals and groups who purported to speak on their behalf. While two competing Sengwer peoples organizations in Cherangani were identified at the outset of the Project, subsequent Project consultations suggested that neither of them was well known among the communities nor did all the communities consider them as their representative. Indeed, some communities (e.g., in Embobut) affirmed that they did not have any social or cultural organizations that spoke on their behalf. As a result, on numerous occasions, development of project instruments such as the VMGPs and project implementation was delayed as the implementing agencies with the project team attempted to sort out the real will of the communities. This required a much more intensive consultations process than had been anticipated. The consultation process culminated in the communities, including provincial representatives and elders, selecting their own representatives through a free and open process and development of a grievance complaints handling mechanism. While this did not resolve the issue of dissent completely it did allow for the much delayed livelihoods activities to commence and the bulk of project related complaints to be resolved at the project level.

31. *Despite an acceleration in disbursement from 52% in July 2012 to 92% at the time of the ICR review in December 2013, absorption capacity was a persistent issue during implementation, leading to the second restructuring to cancel US\$7.24 million.*

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

32. *A comprehensive results-based M&E system design was originally proposed to track project implementation and to assess the impact of the project on target groups and the natural resource base. The design would have a two-tier monitoring approach: (i) a centralized, comprehensive Management Information System (MIS) housed at the central Kenyan Soils Survey (KSS) and that would support multiple natural resources related activities, not only the Project, (ii) a Geographic Information System (GIS) laboratory at the Kenya Agricultural Research Institute (KARI), and (iii) at community level, tracking performance through accountability mechanisms such as score cards and social audits; participation would be reinforced by a public awareness and communication program.*

33. *During implementation, the M&E system was not fully put in place, partly due to difficulties in implementation by multiple institutions, and inconclusive discussions between the PCO and KARI. The PCO claimed that KSS and KARI had (i) no data on forest cover; and (ii) no mandate to measure water flows or analyze water quality. KARI argued that the PCO had never made a clear proposal. Also, there was no budget for funding the MIS at KARI.*

34. *Because of these issues, at MTR it was agreed to put in place a stand-alone and more modest and cost-effective Project-specific M&E system operating at two levels: at the PCO, which would act as a hub to the IAs which would each have M&E functions. This more modest design was put in place at the time of the 2011 restructuring, which also simplified the Project results chain including the revised PDO, more clearly defined indicators that are within the sphere of direct Project influence, and more reasonable targets that are achievable within the Project timeframe and budget. Under implementation, the IAs had a module and a data transfer protocol for communicating with the PCO. The system allowed for linking each step in the results chain, producing regular reports every quarter, half year and annually. However, inadequate information was compiled for the second tier monitoring of impacts on resources and communities, and at times M&E staffing at IAs was wanting. Regular upgrades added geo-referenced CDD schemes and social and environmental safeguards reporting. The recalibrated M&E system was utilized by the client to report on Project targets but could have intensified efforts to quantify social and environmental impacts.*

35. *The rating is moderately satisfactory, which takes into account the improvements made to M&E design, implementation and utilization from the 2011 restructuring. The streamlined system was creatively and appropriately designed and utilized effectively for reporting on the project results framework, but was less ambitious than originally conceived, probably due to complexities arising from multi-agency implementation.*

2.4. Safeguard and Fiduciary Compliance

36. *The project triggered seven World Bank safeguard policies:* (i) Environmental Assessment; (ii) Involuntary Resettlement; (iii) Natural Habitats; (iv) Forests; (v) Physical Cultural Resources; (vi) Indigenous People¹¹; and (vii) International Waters. All the required safeguards documents were in place at effectiveness, including the Environment and Social Management Framework (ESMF), the Resettlement Policy Framework (RPF), and the Indigenous Peoples Planning Framework (IPPF). However, the post-election turmoil that followed the 2007 election had a major impact on the start of Project activities on the ground, particularly in Western Kenya and Rift Valley provinces. Some areas were inaccessible to both Bank and IA staff until about June 2008. Inter-ethnic conflicts led to large numbers of displaced persons seeking refuge in gazetted forest areas, including the Cherangani Hills, adding to already strained inter-community relationships about land tenure and access. During implementation, a Process Framework (PF) was approved after lengthy, widespread consultations, which addressed customary rights of forest dependent populations and established a grievance mechanism. As of October 2013, three months after closing, KFS had been working to mainstream the PF into its work nationwide as a tool to support participatory management of forest resources.

37. *Environment.* The project was classified Category B since investments were small or medium size (water storage and check dams) with environmental, human health and safety, and trans-boundary impacts being easy to identify and mitigate. Annual environmental audits for the NRMP activities were conducted providing qualitative and quantitative evidence on the environmental status of the various interventions.

38. *Social.* The project environment has been challenging from the outset, and is characterized by tension over historic land issues, longstanding grievances of indigenous communities, and unresolved conflicts between those communities and the KFS. There have been additional challenges to project implementation that have complicated project safeguards, such as the widespread ethnic violence that took place in Kenya following the elections in 2007, including a significant influx into forest areas of people displaced by that violence and the security-related mobility restrictions for Bank staff until mid-2008. As noted above and in the RP, the original project design was overly ambitious, including aspirations in safeguard instruments to resolve long-standing land and forest conflicts nationwide that were not realistic given the scope and timeframe of the project. This ambition contributed to occasional difficulties in maintaining a clear distinction between project activities and activities outside the project, and has at times blurred the line defining the appropriate boundaries of project safeguard obligations. In addition, it was not always clear which were the appropriate and representative entities the project team should engage with given the dissenting voices of the indigenous people organizations.

39. In complying with safeguard obligations, there has been much proactive work over three years on the part of the GoK and the indigenous communities (and the Bank) to

¹¹OP 4.10 was triggered by the presence of Sengwer/Cherangani indigenous people of Cherangani Hills and Embobut forest, and the Ogiek indigenous people of Mt Elgon forest within the project area, and the precarious state of their traditional or customary land and natural resources in these forest lands.

build trust so that progress can be made on the ground on poverty alleviation, community resource rights, and conservation in a way that satisfies the vast majority of stakeholders. In general, the GoK and Bank have erred on the side of caution, reacting promptly to complaints as they have come to their attention, carrying out exceptionally intensive field supervision (every 10 weeks on average) and verifications, and strongly advising Government to implement solutions consistent with project safeguard frameworks and international best practices with regard to environmental and social safeguards. Complicating safeguards compliance issues is the underlying fact that the project documentation at entry was not internally consistent on safeguards obligations, (see section on Quality at Entry) raising expectations of what NRMP (or any project) could accomplish on a decades-old simmering legacy of land access issues that continue to punctuate national politics. This issue could have been further compounded by the turnover in social safeguards staff/consultants.

40. In early 2012, the project team and Bank management worked internally with OPCS to prepare a dispute resolution approach (complementing the local Project-level grievance redress mechanism (GRM) led by KFS) to support resolution of community concerns. This was an early example of utilizing the new grievance redress capacity that the Board had approved for Management to develop in response to a 2010 IEG safeguards evaluation. An independent high-level regional mediator was engaged to support dialogue between KFS and community groups through a collaborative problem solving process. The intention was to build sustained capacity for the local Project-level GRM and also facilitate dispute resolution on specific, potentially broader issues important to the indigenous communities participating in the Project. The action plans and agreements identified through this process were affirmed through participatory community meetings. The specific actions included delivery of Project benefits, co-management opportunities, initiatives to address land issues, and a commitment by both KFS and communities to strengthen existing local grievance redress procedures.

41. *The IPPF approved by the Bank in 2006 posed several implementation challenges* as it included activities that were far beyond the scope of the project, would have required interventions by multiple agencies including those outside the Project, and were not implementable during the project timeframe. Particularly controversial were the following items introduced in the IPPF (but not in the PAD): (i) hasten the provision of titles for land occupied and used by the communities in the project areas, including support for necessary steps, such as a land survey, demarcation and registration of titles; (ii) establish a policy to rehabilitate livelihoods of evicted people to the level of December 2002; and (iii) offer assistance within the land restitution process to indigenous people *to claim all lands over which they have lost control between 1895 and 2002*. These items were not related to the mitigation of the foreseen project intervention and raised unrealistic expectations contributing to unresolved conflicts between sections of some communities and the GoK.

42. *In January 2013 the Inspection Panel of the World Bank received a request for inspection sent by individuals from Sengwer communities who “live and represent others who live” in four areas of the Cherangani Hills, claiming that they have suffered harm as a result of the Bank’s “failure and omissions” in the project for incidents between 2007*

and 2011.¹² After reviewing the issues raised, Bank Management concluded that any harm that may have stemmed from the incidents cited in the request was not caused or aggravated by the project, nor has the project supported these incidents. Management stated that in spite of the difficult operating environment which included complex and sensitive legacy issues, the Bank had complied with the policies and procedures applicable to the matters raised in the request.

43. *The Panel stated in its Report and Recommendation dated May 29, 2013 that there were conflicting assertions and differing views on issues of harm and compliance with policies and procedures raised in the request for inspection, in the Management response, in the Panel's meetings with affected people, and with Bank staff. Hence, the Panel recommended an investigation, which is to be concluded in early 2014.*

44. At the time of the Project restructuring, a change in safeguards category was not considered necessary, because the process of setting up institutional structures to address these issues under the new Constitution was in progress, as was the development of the NRMP Process Framework which included the grievance redress mechanism which was used by the indigenous communities and KFS.

45. *Financial reporting.* The accounting capacity was adequate: financial reports and annual audited statements were submitted in a timely manner, and no outstanding issues remained pending. Disbursement procedures took longer than necessary because of the IAs' lack of experience and inability to move at the required pace during implementation, coupled with documented bottlenecks at Treasury that in 2012 and 2013 affected other Bank-financed projects besides NRMP. The low absorptive capacity during the first years was affected by staff shortage resulting in lower disbursements levels than expected. Constraints were generally overcome during the last two years. There were delays in procurement processes for most of the key project activities due to internal slow processing of key procurements by IAs and in requesting No Objections.

2.5 Post-completion Operation/Next Phase

46. *WRMA, KFS and the NIB are committed to continue all project activities even those not yet completed through its specialized departments.* The new government that was elected in 2013 reorganized key Ministries, merging the MoWI, the MoFW and the Ministry of Environment and Natural Resources (MoENR) into the Ministry of Environment, Water and Natural Resources (MoEWNR). The reorganization offers an opportunity for better coordination of natural resources and water resources activities in

¹² The Request raises a broad array of concerns regarding indigenous groups' land rights and tenure, including historical, unresolved land issues. Specifically the Request refers to a number of incidents between 2007 and 2011, which the Request claims involved evictions of community members from forest areas, alleged arrests of community members by the authorities, and alleged wounding of a community member by the authorities. The Request asserts that the Government should compensate them for these incidents. The Request also raises broader issues related to resettlement of forest communities, including allegations that the Government is currently planning to undertake resettlement without complying with safeguard requirements. The Request further puts forth a number of demands that are addressed to the GoK, and asserts that various incidents and actions of the GoK are not in compliance with the Indigenous Peoples' Planning Framework (IPPF) prepared for the Project, and that the Bank's supervision was insufficient.

Kenya. MoEWN capacity has benefitted from the NRMP's improved infrastructure and human capacity. The GOK pledged not to change Cabinet Department portfolios ensuring stability and sustainability. However, there is still a need for improvement in setting new roles, budgetary provisions and staffing for the IAs. KFS management mainstreamed and employed a full-time Social Development Specialist (introduced during NRMP to work on social safeguards issues) to support the institution's engagements with communities beyond the NRMP in addition to all specialists contracted for the project.

47. *The GoK requested Bank support for an ambitious long-term and large-scale investment series aimed at building water security and climate resilience.* This resulted in a phased series of operations called the Kenya Water Security and Climate Resilience Project (KWSCR). The KWSCR-1 would assume the financing of the construction of the new Lower Nzoia irrigation, whose design was financed by NRMP. The NIB staff is developing the scheme's structures and providing irrigation water up to the tertiary level, and maintaining upstream structures such as water pumps or main canals. The capacity building provided to IWUAs had prepared users to manage the infrastructure transferred to them, and lessons from Mwea irrigation under NRMP are being incorporated. The strong synergy created between NRMP and WaSSIP with regards to the management of critical catchments for water storage infrastructure offers lessons for the KWSCR.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

48. *The NRMP objectives and design remain highly relevant for Kenya.* Poor water resources management and degradation is costing the country at least Ksh 3.3 billion (0.5% of GDP) annually, handicapping efforts for poverty alleviation and shared prosperity. Kenya's Vision 2030 aims for the country to be a middle income country. Natural resources play a key role in achieving this objective, directly through livelihoods and jobs, and indirectly by managing climate risks or enabling growth in primary sectors such as agriculture, power, and tourism. Vision 2030 also prioritizes food production which requires developing irrigation for domestic food security and export. Expanding tree cover to 10% is another Vision 2030 priority, recognizing that tree cover is vital to ensure functioning watershed systems and groundwater recharge areas critical for water security, and to provide essential habitat for wildlife. NRMP's design emphasized participatory community approaches to forest, irrigation and water resources management, an approach that is gaining currency with the GoK.

49. *The country recognizes that watershed management needs to continue to be improved, along with better water harvesting and storage structures, and expanded and efficient water services that require sustainable land uses as well as community participation and resource rights.* Kenya is a water-scarce country, with rapidly-growing water demand, and very limited storage capacity. Only 55% of Kenyans have access to safe drinking water. Severe degradation of its five water towers and catchment areas has

contributed to the current water crisis.¹³ To meet rising demand, Kenya continues to promote sustainable water development along with efficient water services management. New institutions that separate responsibilities for legislation and policy making, regulation, asset ownership, and service provision need further strengthening for decentralized management to work. Investments in water services, forest and watershed management, groundwater management, and adequate hydraulic infrastructure are critical. As a result, integrated and participatory management of natural resources including the five forested “water towers” continues to be a high priority for the GoK and for the Bank’s current Country Partnership Strategy (CPS).

50. *During NRMP implementation, the importance of groundwater started to be recognized and pilot groundwater management initiatives and policy reforms were supported.* Under NRMP, pilot initiatives were carried out to better understand groundwater sources (such as the recharge mechanism for Kikuyu Springs, a stable source of water for Nairobi and Kikuyu communities, development of a groundwater management plan for Kikuyu Springs, and the gazetting of the recharge areas) and initiate the preparation of a new groundwater development and management policy.

3.2 Achievement of Project Development Objectives

51. *The overall achievement of the PDO is rated moderately satisfactory.* This rating reflects the relative weight given to both the original and restructured project objectives, based on disbursement of 31% at the time of the June 2011 level 1 restructuring, plus additional considerations, namely: (i) achievement of outcome targets as of the June 2011 restructuring and the June 2013 closing,¹⁴ (ii) absorption issues, (iii) the operating environment faced by this complex project, which were proactively addressed, and (iv) the overall project results for the client and beneficiaries.

52. *Achievement of development objectives at the time of the June 2011 restructuring is rated moderately satisfactory.*¹⁵ The PDO in the 2007 Financing Agreement was “to enhance the Recipient’s institutional capacity to manage water and forest resources, reduce the incidence and severity of water shocks such as drought, floods and water shortage in river catchments and improve the livelihoods of communities participating in the co-management of water and forest resources.” The achievement of the first objective (enhance institutional capacity) is substantial. The achievement of the second objective (reduce water shocks) is modest. The third objective (improve livelihoods) is substantial. The PDO indicators retained by the restructured project were on track to achieve their targets, while other indicators were not tracked or were off-track. At this time disbursement was 31%.

¹³ Increased water scarcity in Kenya results in reduced water supplies and hydroelectricity, growing competition and increased conflicts over water. Growing pressure on natural resources would accelerate encroachment threatening the country’s goals for economic growth and urbanization.

¹⁴ Weighting is based on disbursement rate which was 31% at the time of the level 1 restructuring in 2011 that clarified and simplified the PDO and some indicators as noted earlier, added new indicators, and explicitly established investment activities for forest communities in the Cherangani Hills.

¹⁵ Same rating in the May 2011 ISR, down from satisfactory ratings in the previous two ISRs.

53. *Achievement of development objectives at the time of closing in June 2013 is rated moderately satisfactory.*¹⁶ The restructured PDO was “to improve the management of water and forest resources in selected districts.” This objective was achieved substantially, reflecting the fact that all the restructured PDO indicators and almost all the restructured intermediate indicators have achieved their targets, with the exception of the construction of the Lower Nzoia irrigation scheme mentioned above. The disbursement rate of the project rose from 31% at the time of restructuring in June 2011 to 92% in Q2 of FY2014, reflecting the fact that much of the project targets were achieved with expenditures in the final year of implementation.

54. *The overall assessment of the extent of achievement of the development objectives is underpinned below by detailed assessments on the achievements of each of the main groupings of interventions related to the PDO before and after restructuring, including: (i) water resources management (including catchment management), (ii) irrigation management, and (iii) forest resources management. All three components together help address both the revised and original Project objectives related to reducing water shocks, improving livelihoods, and enhancing institutional capacity to manage water and forest resources.*

Achievement of the Project’s Objectives on Water Resources Management

55. Overall, the project generated *satisfactory* achievements for water resources management, a theme that was supported through project components 1.1 and 3, both implemented by WRMA. These components together contributed to (i) improved capacity of WRMA and communities to manage watersheds, and (ii) greatly enhanced community capacity to implement CDD subprojects. Nevertheless, the components did not fully deliver on some aspects.

56. *Subcomponent 1.1: The overall rating is moderately satisfactory, based on slow progress before restructuring and satisfactory progress after restructuring.* The original focus shifted from siltation control investments to strengthening WRMA capacity to support WRUAs to develop sub-catchment management plans (SCMPs) and implement small works that can deliver multiple benefits such as livelihoods and erosion reduction.

57. Before restructuring there were delays in (i) conducting the physiographic baseline survey, (ii) identifying investments to control sedimentation, and (iii) capacity building of IAs and CBOs. This was complicated by the fact that the project design was could not mitigate all factors inside and outside the project area (i.e., road construction) that result in sedimentation of water bodies. The sub-component was therefore modified as follows: (i) the budget for financing siltation control and catchment restoration investments in SCMPs was reduced by 80%; and (ii) the PDO-level sedimentation indicator (*reduction in sediment in rivers and reservoirs*) was dropped and substituted by an indicator designed to measure WRMA’s capacity (*increase in revenue collected from water use charges*). The new indicator target was surpassed by Project closing.

¹⁶ Same rating in the last two ISRs.

58. The water use revenue indicator added at 2011 project restructuring measured WRMA's capacity to monitor and regulate water use. The target was exceeded as large users like KenGen were brought into compliance. The total revenue now stands at Ksh 366 million, from a baseline figure of Ksh 267 million. Further increases could be attained with stronger enforcement.

59. Likewise, an intermediate indicator target was surpassed: 51 instead of the planned 30 SCMPs were developed by WRUAs and approved by WRMA. Guidelines for developing the SCMPs and for implementing integrated watershed management are now disseminated and followed. WRMA's capacity to deliver on this indicator has been strengthened, and continues to facilitate the development and implementation of SCMPs based on participatory approaches and public outreach.

60. Given the initial delays in the early implementation of the SCMP investments and the deferrals in reducing (and measuring) sedimentation rates in rivers and reservoirs, the performance against the original PDO for the subcomponent (Strengthening WRMA including direct investments in the Upper Tana catchment) is rated *moderately unsatisfactory*. When compared with the restructured PDO indicators, the subcomponent's performance becomes *satisfactory*: WRMA is now prepared for better management of water resources with decentralized activities linking WRUAs in the design and execution of SCMPs; it is collecting increasing revenues from water users and is better prepared with valid strategies and means for expanding good practices to other catchments. *Taken together, the overall rating for the subcomponent 1.1 is considered moderately satisfactory.*

61. *The outcome of Component 3 (Livelihood Investments in the Upper Tana Catchment)(also implemented by WRMA) is rated highly satisfactory* because it has surpassed its targets and demonstrated results that have generated remarkable impact benefiting CBOs through environmentally sustainable livelihoods micro-projects. Component 3 also disbursed 69% more funds than budgeted in the PAD (US\$9.3 million vs. US\$5.5 million). The component supported proposals from communities in the treated catchments and forest perimeters investing in livelihood enhancing schemes that directly or indirectly protected natural resources.¹⁷ Implementation had a slow uptake initially but increased rapidly in the final year as momentum grew, reaching a total of nearly 120,000 members of CBOs were mobilized and trained in subproject management. Of these, 3332 sub-project proposals were received from 713 CBOs, and 706 micro-projects were financed by NRMP. These micro-projects supported livelihoods for 4,145 direct beneficiaries, and nearly 25,000 when including household members. While it is too early to fully assess impacts in terms of improvements in the people's livelihoods, clear indications are that if the current effort is sustained, livelihoods will continue to improve and micro-projects could be replicated.

¹⁷ More than 10% of the funds financed energy efficient and cleaner *jikos* (cookstoves) and biogas plants at schools, displacing firewood use by an estimated 75%.

Achievement of the Project's Objectives on Irrigation Management

62. Overall, the project generated *moderately satisfactory* achievements in irrigation management, which was supported through project component 1.2 and implemented by NIB. The project contributed to (i) 9500 ha of farmland in Mwea with improved irrigation, (ii) the design of the Lower Nzoia irrigation scheme (but not the construction as originally intended), and (iii) stronger capacity of NIB to implement the above activities and carry out its mandate, which is an especially relevant achievement given that NIB is now implementing the larger irrigation component under the IDA-financed WSCR-P-I after facing absorption challenges with NRMP, and has an ambitious program planned to expand irrigated area and related extension.

63. In Mwea, which is a high value rice production area, NRMP support directly resulted in 9500 ha of productive land improved by rehabilitating irrigation works in 7250 ha (including 830 ha that was completely deteriorated) and expanding 1250 ha of irrigation works into out-grower areas. This achievement is more than a planned target of 9427 ha. The sub-component also successfully piloted “System of Rice Intensification” in some plots, a resilient, low-carbon agricultural practice that allowed participating Mwea rice farmers to conserve water while increasing yields approximately 20% while reducing water use by roughly a third and eradicating mosquito breeding. 11,000 farmers from Mwea benefitted from rehabilitation and improved service. Also, about 4200 farmers have benefitted through improved irrigation service as their IWUAs were strengthened but not from the planned systems’ rehabilitation.

64. The new construction of the Lower Nzoia Irrigation scheme was not implemented under NRMP, but an expanded version of the scheme, designed with NRMP financing, is supported under the new IDA-financed KWSCR-P-I approved in 2013. As such, no new irrigated area was delivered by the Lower Nzoia scheme.

65. The PAD’s indicator did not distinguish between new irrigation and rehabilitated irrigation schemes and listed the overall target as a generic 3500 ha, which has been met by the project. The PAD text, however, gave a rehabilitation target of 12,800 ha and an expanded irrigated area target of 3500 ha. The results framework in the RP distinguished explicitly between the two, and the Project tracked both to closure.

66. The project also measured two indicators through Project closing that were either dropped during the 2011 restructuring, or were never one of the official project indicators. The first indicator (*% of irrigation scheme users satisfied with O&M service*), saw its target of 80% exceeded, hitting 95% at project close. Rehabilitation of Mwea and capacity building of 4 schemes helped IWUAs to assume O&M and improve water distribution through joint collaboration with NIB. The second indicator (*% cost recovery for O&M*) was fully achieved. This indicator was tracked through project close although it was dropped during the 2011 project restructuring. At the time of restructuring, irrigation rehabilitation activities were recalibrated to focus on Mwea; the data for this indicator comes from the irrigation users there.

67. Overall, while the irrigation activities (i) generated success at Mwea in terms of land area improved and users satisfied, and (ii) contributed to the dialogue, design and scaling up of new construction in Lower Nzoia under a follow-on project, these activities taken together are rated as *moderately unsatisfactory*.

68. With regard to the sub-component outcome on consolidating irrigation reforms, a number of aspects inform the overall sub-component rating, as follows.

69. *The reform targets were to be achieved before mid-2008.* The “Irrigation and Drainage Master Plan” was prepared with detailed data/information by the MoWI in June 2009. Following the policy to accelerate irrigation development, budget allocation has increased remarkably since 2008. The preparation of feasibility studies, detailed design works construction works for irrigation systems including rehabilitation and expansion of existing schemes, and new systems have been accelerated. The Irrigation Act and the new Irrigation and Drainage Bill are pending approval. The Irrigation Sector Alignment Action Plan, and the Irrigation, Drainage and Water Storage Development Investment Plans are awaiting implementation.

70. *NIB has clear plans, programs and budgets, and is more results-oriented than at project start-up, despite the 2009 institutional realignment study that still needs the policy level documents approved.* It consistently scores in the excellent or very good range on GoK Performance Contract ratings. The NIB has moved in just five years from a situation where no major scheme had been developed for 25 years, and an empty investment pipeline, to the situation today of 119 projects being processed for a total possible area of 144,000 ha and a 2012/13 budget of Ksh 11.4 billion (US\$142 million).

71. These transformations bring vulnerabilities and risks; one of the major challenges is the gap in setting and measuring performance targets: there is not yet monitoring and benchmarking of key irrigation parameters like water use efficiency, “crop per drop,” O&M cost per ha, or of key institutional development challenges like strengthening the financial sustainability of schemes and preparing for irrigation management transfer. Investments in general are not sufficiently prioritized according to quantitative social or economic evidence but are instead set largely by considerations of technical potential. NIB could also benefit from developing an effective plan to engage private capital or services in the irrigation sub-sector or to seek capital cost sharing from beneficiaries.

72. When the project was restructured in 2011, cost overruns on consultancies and under-budgeted irrigation civil work costs made it necessary to realign the irrigation investments. Ahero, West Kano, Bunyala and Perkerra rehabilitation funds were narrowed to capacity building of IWUAs only and investment funds were concentrated to Mwea Rehabilitation Scheme and for design and construction of the Lower Nzoia Irrigation Scheme. Subsequent delays resulted in an absorption rate of 69% for this subcomponent before the June 2013 restructuring.

Achievement of the Project’s Objectives on Forest Resources Management

73. Overall, the project generated *moderately satisfactory* achievements in forest management activities, implemented predominately by KFS, with the exception of REDD readiness studies and Secretariat support which were implemented by the MEWNR. The project contributed to (i) 320,000 ha of forest area being managed according to approved forest management plans (exceeding the PDO level outcome target), (ii) 7124 ha of newly forested area, more than doubling the target, (iii) improved community engagement in forest management and livelihoods, (iv) greater readiness of the country to

access carbon payments under REDD and share those benefits with local stakeholders, and (v) modernization and strengthening of KFS through inclusion of professional staff and training on community outreach, participatory forest management, extension, knowledge management, GIS, resulting in stronger capacity of KFS to carry out its mandate, which is an especially relevant achievement given the legacy of land use and access challenges faced by the country as it aims to double its forested area by 2020, and address the concerns of indigenous people and internally displaced people who reside in or are dependent upon forested areas. However, as noted at restructuring, the project was not well placed to put in place systems for payments for environmental services or resolve land ownership grievances. During implementation, concessions for forest plantations were stopped due to a lawsuit barring KFS to proceed.

74. *The Forest Act led to a shift in policy towards community engagement in forest management giving considerable weight to the participation of Community Forest Associations (CFAs).* Initially, KFS was ill-placed to effectively implement this provision in the new Forest Act as it had little capacity in social development issues. Under NRMP, progress was made in training, capacity building to support forest conservation, community outreach and participatory approaches, extension services, as well as construction of a modern knowledge management and training center and regional offices. The CFAs supported under NRMP gained practical knowledge in NRM, and KFS developed practical experience for achieving their goals.

75. *Indigenous people also benefitted under the Project:* community-led Vulnerable and Marginalized Group Plans (VMGPs) were prepared by each participating community and activities carried out that delivered significant benefits for participants. Institutionalization of a continuous and intensive series of participatory consultations was an important and long lasting effort towards sustaining project gains, accompanied by also nearly continuous implementation support missions (every 10 weeks on average). Implementation of VMGPs has raised the prospects of continued involvement of communities in forest protection and management resulting in a continuous reduction in safeguard-related complaints from VMGs due to efficient response from KFS using the grievance mechanism developed under the project, involving quick responses to enquiries and a continued reorientation of KFS field staff towards greater community sensitivity. This grievance mechanism was developed as part of the Process Framework, which also put in place procedures for protecting indigenous people's customary rights to forest resources. The Process Framework is a tangible project achievement that has the potential to contribute to greater co-management of forest resources in the future, as the Ogiek are piloting with KFS.

76. *Capacity building:* Most appreciated by the VMGCCs and communities was the training and capacity building which allowed them to better manage their affairs. According to VMGs and VMGCCs, training on governance, procurement, and technical skills related to specific CDD sub-project activities improved their abilities to organize as groups and manage their enterprises. Examples included (a) improved leadership abilities which has seen VMGCC members being incorporated into other development entities such as Peace Building Committees; (b) VMGCC members were being consulted as resource persons in various development related activities such as coffee and dairy

farming. Technical skills training led to successful implementation of a number of micro-projects while governance training led to more accountability by VMGCCs.

77. *Outside of the scope, financing, and influence of NRMP*, a resettlement of VMGs and internally displaced people in the forest areas was planned by the Ministry of State for Special Programs (MSSP) which was not a Project implementing agency. In November and December 2013, it became apparent that the proposed resettlement process had been replaced with a strategy for eviction with cash compensation as newspapers reported the handing of cash compensation to IDPs and others. The IDPs and forest evictees and dwellers were being offered cash compensation of Kshs 400,000 (about \$4,761) to find their own land and relocate, contrary to best practice and previous advice of the Bank (even though the action was not supported by NRMP, the Bank advised the Government that any resettlement carried out that affected forest people should adhere to best practice). The process, which was independent of NRMP and the Bank, will affect the sustainability of the outcomes from VMGP implementation, and holds important lessons for the country as it continues to address its legacy of land access issues.

78. *Some achievements were made in identifying and prioritizing partnership models to implement the legislative framework and improve benefit sharing arrangements; for example, the REDD readiness activities supported by NRMP after restructuring included the development of a benefits sharing options framework.* This work will continue with a follow on REDD grant under the Forest Carbon Partnership Facility. This is an important element to curb forest degradation, put in place a sustainable PES scheme for forest carbon, enhance sustainable access by local communities to forest resources, and forge agreement and partnerships on benefit sharing options and ways to co-manage forests. Notably, the Ogiek and KFS have piloted participatory forest management and this has promise for further scaling up.

3.3 Efficiency

79. **The ex-post economic efficiency analysis conducted for NRMP confirms the positive economic impact the project was expected to generate.** The simulations yield positive results for almost all of the scenarios for the baseline assumptions. Only the 20% discount rate simulation results in a negative NPV and a benefit-cost ratio less than one. As the NPV is only slightly below zero, it already indicates an ERR close to 20%, which is mathematically confirmed at 16.7%. The results of the quantitative simulations are also robust across a range of sensitivity analyses assuming significant changes in discount rates and key simulation parameters, notably agricultural yield, watershed benefits, and carbon benefits. Throughout the analysis, it was emphasized that benefit assumptions were always done conservatively using lower-bound values, especially as regards non-market benefits such as watershed and carbon benefits.

Table 1: Summary of simulation results (NPV stated in USD million)

Discount Rate	Baseline		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	NPV	BCR								
2%	37.14	1.72	16.45	1.32	20.88	1.40	36.21	0.95	-0.73	0.55
5%	23.15	1.50	6.94	1.15	10.36	1.22	22.42	0.96	-6.58	0.55
10%	9.09	1.23	-2.17	0.94	0.13	1.00	8.57	0.93	-11.64	0.53
20%	-2.35	0.92	-8.53	0.70	-7.40	0.74	-2.64	0.91	-13.87	0.51
	ERR: 16.7%		ERR: 8.5%		ERR: 10.1%		ERR: 16.3%		ERR: 1.7%	

NPV = Net Present Value; BCR = Benefit-Cost-Ratio; ERR = Economic Rate of Return

Scenario 1: Reduced agricultural benefit (50%)

Scenario 2: Reduced watershed benefits (50%)

Scenario 3: Reduced carbon benefits (50%)

Scenario 4: All benefits reduced (50%)

80. **Analyzing the project impacts in the broader context of economic development and environmental change that took place in Kenya during project implementation implies that the project piloted and catalyzed important development momentum for the sustainable management of natural resources.**

With increasing pressure on natural resources and growing ecosystem stress through climate change, the project investments and associated achievements are highly relevant in today's context. With growing urban populations and increasing demand for water, safeguarding Kenya's water towers through sustainable management of watersheds and forest resources is a paramount ingredient to the country's development ambitions. Against increasing global food prices and increasing domestic demand for food, rehabilitating and extending irrigation infrastructure is a vital measure to enhance food security and support economic development, especially in rural areas.

81. **This ex-post economic assessment confirms the anticipated economic impacts envisaged during project design.** The ex-ante economic evaluation of the different NRM Project interventions, such as SLM, reforestation, irrigation, and CDD micro-projects, indicated that most activities are likely to be profitable from the beneficiary and project perspective. In many cases, the off-site effects add significantly to economic viability from society's perspective. The results of the analysis have some important implications for the design and implementation of future operations.

82. **Based on this economic efficiency evaluation, it is concluded that the project has resulted in significant positive development impacts.** The consideration of only a few of those benefits into the quantitative analysis sufficed to yield positive economic results. The achieved economic benefits comply largely with what was anticipated during the design stage of the project. This supports the design and implementation of the project, in particular the selection of activities in which the project invested. It demonstrates that investments in sustainable natural resource management contribute significantly to the economic development ambitions of countries such as Kenya as they generate and safeguard important direct environmental services and can stimulate economic development in rural areas where income opportunities remain sparse.

3.4 Justification of Overall Outcome Rating

Rating: Moderately Satisfactory

83. *The NRMP was highly relevant to the GoK's 2030 goals and to World Bank strategy.* The project disbursement as of the end of November, 2013, is 92% (Annex 1). Despite shortcomings under the first two components, the project advanced significantly and validated approaches for decentralized, participatory NRM with active involvement of specialized parastatals, rural communities dependent on forest and farming (including indigenous communities) and CBOs. The project has considerably improved the capacity of WRMA, NIB and KFS in resource monitoring, conservation, project management, and in implementing participatory approaches to NRM. Despite these positive outcomes generated by the end of project closing, the original objectives and design were too optimistic and lacked coherence across project documentation which arguably contributed to later problems. Delaying factors affected implementation but by adjusting strategies and reviewing its scope at MTR, it was possible to advance with the participatory, decentralized and flexible approach through empowered CBOs and strengthened IAs. Project performance ended being effective, with many valid results upon which to continue a solid policy and investment dialogue between the Bank and the GoK. In January 2014, however, evictions carried out by the Government could undermine post-project sustainability of the CDD activities financed under the forest component.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

84. **Poverty aspects.** *The project succeeded in promoting and validating new approaches for improving living conditions among the CBOs and VMGs, alleviating poverty through better water and forest management practices, and increasing revenues while supporting better natural resource management in (i) fragile forest environments in strategic water towers, (ii) critical catchments and groundwater recharge areas, and (iii) high value irrigated rice growing areas.* 145,000 rural people -- sometimes vulnerable or marginalized and exposed to exogenous shocks -- have benefitted from the irrigation works at Mwea or the community-driven micro-projects supported under the project: dairy cows and/or goats, greenhouse tomatoes, tree seedlings, woodlots and poultry, and so on (see Annex 3). With the strengthened capacity of NIB, WRMA and KFS, the process continues to advance in most project areas, generating lessons for scaling out.

85. **Gender aspects.** As Kenya decentralizes governance, the country's forest, land and water resources will increasingly be locally managed or co-managed. This evolution implies the need to cultivate greater female participation in local resource management and monitoring. Under NRMP, women were increasingly included (results indicators show a 50% participation rate in community driven activities, up from 30%), and empowered in terms of knowledge, self-esteem and attitude to undertake activities to improve their livelihoods. An economic space has been opened and women are now enthusiastic to assume more active roles. For example, women who own tea/coffee farms,

poultry, dairy cows or other animals are gaining new economic status as they enter into some activities usually reserved for men.¹⁸ In addition, participation in micro-project groups provided women with an opportunity to share life experiences, which was uplifting for some forest women who had never had such opportunities before the project.

86. **Social development.** *Despite the safeguards concerns, social capital was built.* The NRMP IPPF included a number of activities and responsibilities assigned to KFS but beyond the scope of KFS's institutional mandate and the timeframe of the project. For example, the significant policy interventions and multi-agency actions regarding ancestral and land rights still require careful attention. Hence, it was agreed at the 2011 restructuring that an Inter-Ministerial Task Force was needed to address these issues; the Task Force was later folded into the Lands Commission which is the accountable GoK institution for these issues. The 2011 restructuring also resulted in the CDD livelihoods support in the forest areas which proved very popular among indigenous communities, as seen in the well documented requests to the Inspection Panel in Spring 2013 for the project to continue its support beyond project closing. The CDD micro-projects implemented by KFS in forests and WRMA outside of forests resulted in overall improvements in community livelihoods and income generating opportunities. Also, the capacity building activities and opportunity to participate in socio-economic interest groups contributed to community cohesion and gave voice to marginalized communities.

(b) Institutional Change/Strengthening

87. *WRMA, NIB and KFS have been strengthened as semi-autonomous specialized institutions with enhanced capacities to manage, collaborate and implement critical water and forest resource programs.* This achievement is clear in spite of delays and shortcomings compared to the original planned interventions. The achievements under NRMP and the partnership approach in which these IAs have involved the communities in water and forest management and conservation issues are encouraging. Their capacity has been strengthened through (i) infrastructure development such as rehabilitation of irrigation, construction of regional and central offices, and the KFS Information Centre and Conference Facility, (ii) strengthening knowledge and human resources (including hiring and mainstreaming the first Social Development Specialist at KFS), and (iii) generation of new knowledge and policy development for irrigation and groundwater.

88. *Community institutions (WRUAs, IWUAs, CFAs and forest dependent VMGs) have also been strengthened through micro-projects and development of tools to support participatory approaches and resolve grievances.* The on-going work of the parastatals to support community empowerment and co-management of resources is important for (i) the future of Kenya's natural resource base and specifically the need for watershed approaches that require multi-stakeholder coordination and participation, (ii) the country's on-going decentralization, (iii) NIB's transformative expansion of irrigation, and (iv) the continued need to clarify land tenure and resource access in line with existing

¹⁸ In Embobut, women from indigenous groups supported by the NRMP's Forest Component and who were involved in poultry micro-projects reported that they no longer had to wait for men to buy simple items such as pencils for their children.

Kenyan law. On this latter point, NRMP has supported KFS to develop and mainstream a number of tools such as the Process Framework that are well-placed to support co-management of forests, resource rights, and grievance resolution through mechanisms developed together with indigenous people -- mechanisms that did not exist before the project. The NRMP project team (GoK and Bank) also reached out to MSSP and the Land Commission to encourage mainstreaming of these tools since NRMP and KFS do not have the mandate to resolve these issues. Much work still needs to be done to incentivize KFS to move toward co-management of forest resources. For some forest agencies around the world, such a transformation is a paradigm shift that requires longer-term engagement than a 3-5 year project allows.

(c) Other Unintended Outcomes and Impacts (positive or negative)

89. *An unintended positive impact of the Mwea irrigation rehabilitation was a drastic decline in malaria* due to reduced water stagnation following the rehabilitation works. The Mutithi Health Centre, serving about 1500 farming households in Mwea, confirmed a decline in clinically reported cases from a monthly average of 166 in 2010 to 2 in 2011 and 0 in 2012 and 2013.

90. *Another unintended positive impact of NRMP was the development of a new Kenya Groundwater Development and Management Policy*, which reflects the changing knowledge about groundwater in Kenya, including the 2013 National Water Master Plan supported by JICA, the large new groundwater find in the Turkana district, the new deep groundwater aquifer discovered in the Coast Region under WaSSIP, and the practical challenges for managing groundwater for Nairobi.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

N/A. Not required for a Core ICR.

4. Assessment of Risk to Development Outcome

Rating: Moderate

91. *Economic conditions in Kenya are currently favorable to further promote a balanced approach for economic growth and environmental conservation.* For most project areas, there is no substantial risk of backtracking on project achievements given the general awareness of the importance of NRM for poverty alleviation, food security and Kenya's overall development. The GoK's strong commitment to water resources is explicit through the recently approved KWSCR-1. There is growing consciousness among decision makers and the public to consider environmental impacts while promoting productivity.

92. However, land access and customary rights, especially to forest lands, is a critical component of sustainable poverty reduction and shared prosperity yet remains an unresolved problem requiring further attention. In the Cherangani Hills, there has been a substantial long-standing risk to the good development outcomes achieved through the CDD micro-projects that arose from the VMG Plans that were developed by the indigenous communities. The risk has been that the MSSP (not an IA of the NRMP) will

carry out a resettlement of the Sengwer/Cherangani without sufficiently following (i) the agreed upon safeguard instruments developed under NRMP, (ii) the many consultations with forest-dependent indigenous people carried out by KFS, or (iii) the Kenyan law on *The Prevention, Protection and Assistance to Internally Displaced Persons and Affected Communities Act of 2012* promulgated in January 2013, which appears to be relatively closely aligned to World Bank safeguard policy concerning customary rights of indigenous people and resettlement. The Bank raised these concerns to the MSSP and the Land Commission, which is tasked with addressing issues of historical land injustice. However, in October 2013, nearly four months after the project closed, it was widely reported in the media that the GoK was giving IDPs and forest evictees Ksh 400,000 per household with which to buy land, which implies that the earlier intended plan by the MSSP to resettle these groups had shifted and was no longer under consideration by the GoK. Since then, in January 2014, evictions were carried out in the Cherangani Hills that could affect the development outcomes achieved through the community-driven activities and trust-building support financed by the NRMP.

93. Because the financial support to the community level activities in the forested areas was a very small portion of the total NRMP budget, *the overall risk to the entire Project is rated moderate.*

94. *The Bank is committed to continue to partner with the GoK on water and natural resource management.* Particular areas of interest that help mitigate risks to development outcomes from NRMP include: (i) the on-going efforts to build a transparent and accountable system for revenue collection and efficient utilization, (ii) work to strengthen monitoring of water and forest resources, (iii) REDD readiness activities to be financed by the Bank's Forest Carbon Partnership Facility (grant not yet signed) to define equitable benefits sharing arrangements with forest communities in a participatory way, and (iv) WRMA and KFS could possibly under KWSCR-2 help develop and implement PES to link Mombasa's water users and Mwache dam to the upper watershed.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately Unsatisfactory

95. *The Bank performance in ensuring quality at entry was found to be moderately unsatisfactory*, largely because of the aforementioned issues as discussed in the 2011 Restructuring Paper, including: (i) different intervention areas in the PAD and IPPF which led to continuous misunderstanding of the Project scope by some stakeholders, (ii) different PDO phrasings in the Financing Agreement and PAD, (iii) unrealistic indicators and over-optimistic targets, and (iv) weak implementation readiness by the IAs. On the other hand, the Bank did convene its worldwide experience for the preparation of a complex multi-sectoral operation with several line agencies and a strategically relevant mix of activities targeting the enabling environment and investment on the ground. Before the approval of the NRMP, the Bank analysed all potential safeguard issues which the project could trigger and recommended the Borrower to critically assess the issues. The Bank also analysed alternative designs and the related operation's capacity as the

potential to merge NRMP with another similar CDD Bank financed project in West Kenya proposing similar approaches. This was rejected and the NRMP was appraised as a stand-alone project to address long-term institutional reforms in MoWI and MENR. The Bank considered the procurement capacity of the IAs as highly risky. Resources were allocated to support transformation of both public sector institutions and communities, including intense capacity strengthening.

(b) Quality of Supervision

Rating: Satisfactory

96. *The Bank's implementation support mission frequency was timely – on an average of every 10 weeks given the complexities in the forest sector concerning the long history of land access and conflict – and intensified as social safeguards challenges arose. The team proactively addressed enquiries and complaint letters very quickly, carried out fact-finding missions, and during the last year of implementation, enquiries and complaints directed to the Bank slowed to only two letters, until the request for inspection came. Aide memoires documented events and recommendations with clarity and detail. The number of staff involved in missions ranged from 4 to 11 depending on the borrower's evolving needs. Staff specialties were consistent and relevant with the requirements. The quality of the Bank's implementation support was judged with regard to focus on development impact, support and supervision of fiduciary and safeguard aspects, candor, flexibility and quality of performance reporting.*

(c) Justification of Rating for Overall Bank Performance

Rating: Moderately Satisfactory

97. *Overall the Bank performance is rated as moderately satisfactory, given that the implementation support was satisfactory and the fact that the Bank adjusted the project in 2011 to address the shortcomings at entry.*

5.2 Borrower Performance

(a) Government Performance

Rating: Moderately Satisfactory

98. *Consistent with the GoK's reform agenda, the GoK advanced the decentralized participatory approach by, inter alia, upgrading the role of the new specialized agencies and engaging more closely with local communities to start the long-term process of improving co-management of water and forest resources. The government showed commitment to the implementation of the project through undertaking necessary policy reforms, releasing counterpart funding, and providing needed facilities. However, there were some shortcomings with respect to appointing the required personnel for the development of the new activities, for releasing project funds disbursed by the World Bank to the IAs, funds absorption in general, and on fiduciary policies.*

(b) Implementing Agency or Agencies Performance

Rating: Moderately Satisfactory

99. *WRMA, NIB and KFS are now consolidated as innovative agencies for managing and developing water resources including public irrigation schemes, and forests. They have been successfully engaging the local communities through registered WRUAs,*

IWUAs and CFAs in resources management as a new routine, developing protocols, operational manuals, management agreements, MOUs, etc. WRMA and NIB also met the revised targets of increasing revenues or fees collected from water users, increasing their capacity to monitor and control, and improving management. However, they could not incorporate and maintain the necessary staff for performing all the additional Project functions in addition to those being part of their routine, delaying overall progress and slowing absorption. In other cases there was lack of continuity of Project personnel in key positions, contributing to delays in implementation. At the 2011 restructuring, with a moderately unsatisfactory performance rating, indicators and targets had to be adjusted to align to their capacity to deliver. Performance increased after restructuring once the project was made more “manageable,” but absorption issues persisted despite a rapid rise in disbursement in the last year.

(c) Justification of Rating for Overall Borrower Performance

Rating: Moderately Satisfactory

100. *Government commitment and ownership of the Project was strong, with most (but still not all) relevant policies and strategies supported by the project having been put in place.* However, due to initial implementation delays and insufficient support to the reform agenda, the original ambitious targets had to be revised at restructuring taking account of the realities of the operational environment and the changes in assumptions used at the design stage. Further support and coordination with other stakeholders were required (such as the Ministry of Agriculture, CBOs and NGOs) to improve land use and management practices for multiple benefits. Implementation was also affected by bottlenecks at Treasury in channeling Project funds to the IAs -- a problem facing many Bank financed projects in Kenya.

6. Lessons Learned

101. The Project offers a number of lessons on institutions, investments, information and implementation for future GOK programming and external financial support to natural resources and the sectors it drives or helps protect. It also provides important lessons for Kenya as it devolves to lower levels of political and resource management. Details are given in Annex 6, covering participatory approaches to NRM, CDD mechanisms, water resources management, irrigation, forest resources management, and project implementation and preparation.

102. The Project adds to the evidence base that natural resources including water, forest, and soils typically benefit from strong and fair participatory approaches to managing the resource and sharing the benefits from the resource, underpinned by robust resource monitoring and grievance redress. Sustainable NRM actions should therefore consider including (i) strong environmental and socio-economic monitoring underpinned by strong data gathering and information management, (ii) good incentives for local resource users to avoid freerider behavior that degrades natural wealth, (iii) secure and predictable rights to resources by local communities, and (iv) effective coordination on planning and prioritization among stakeholders and sectors, given that changes in an upstream area (forested watersheds) affect downstream actors (villages, irrigation users, cities) and can drive conflict.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

103. Comments from the Borrower on this ICR draft were received on December 5, 2013, and have been incorporated (See Annex 5.2).

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
1. Water Resource Mgmt. and Irrigation	40.2	31.8	79.10
1.1 Strengthening capacity of WRMA	13.9	11.2	80.6
1.2 Irrigation Reforms and Investments	26.3	20.6	78.30
2. Management of Forest Resources	20.0	19.9	99.5
2.1 Forest Sector Institutional Reforms	9.0	9.0	100
2.2 Community Participation & Benefit Sharing	8.5	8.5	100
2.3 Comm. & Private Sector Forest Investments	2.4	2.4	100
3. Microcatchment CDD Investments	5.5	5.6	101.80
3.1 Livelihood Based Investment in Upper Tana	5.5	5.6	101.80
4. Project Management	4.3	4.6	107.00
4.1 Management and M&E	4.3	4.6	107.00
Total Baseline Cost	70.0	61.9	88.42
Physical Contingencies	1.2	0.0	0.00
Price Contingencies	6.8	0.0	0.00
Total Project Costs	78.0	61.9	79.40
Total Financing Required	78.0	61.9	

(b) Financing

Source of Funds	Type of Co-financing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		7.40	4.0	54.05
Local Communities		2.10	2.00	95.00
International Development Association (IDA)		68.50	55.90	81.60

Annex 2. Outputs by Component

Component 1 Water Resource Management and Irrigation

Sub-component 1.1: Strengthening capacity of WRMA with direct investments in Upper-Tana Catchment

Budget: US\$13.9 million, actual US\$9.4 million as of Project close, 68%

Rating: Moderately Satisfactory

Table 2.1 Outputs from Sub-component 1.1 (from the Borrower's Completion Report)

Main activity	Sub-activities	Target outputs	Observed outputs	Mode of verification
Establishment support for WRMA	Construction of regional offices (and purchase of furniture, curtains, and curtain boxes)	12 Sub-regional Offices	4 (Embu, Kisumu, Machakos, Nanyuki) All have been completed	Field visit, contracts, reports
	Construction of sub-regional offices (and purchase of furniture, curtains, and curtain boxes)		11 Completed (Muranga, Rumuruti, Kitale, Naivasha, Loitokitok, Nanyuki, Kerugoya, Kitui, and Kapenguria, Siaya, Mombasa, and Kabarnet is 90% complete	
	Refurbishment of offices (and purchase of furniture, curtains, and curtain boxes)		Kisumu, Kericho, Nairobi (All have been completed)	
	Purchase of motor vehicles	12 (1 vehicle per office)	21 Vehicles bought	Payment vouchers, field visits
	Purchase of motor cycles	24 (2 motor cycles/office)	24 motor cycles bought	Payment vouchers, field visits
	Purchase of equipment, computers and software	Computers	53 complete desktop computers+10 Tablets+53 printers+45 telephone heads, 12 secretarial set pieces, 17 laptops	Payment vouchers, field visits
		Software	Mike Basin, Antivirus, MS Office	Payment vouchers
Water resources monitoring	Surface water monitoring	15 National RGS	12	Progress reports, KII
		45 management units	14	
		50 Special stations	42	
		12 Weather stations	9 (+ 2 cumulative rain gauges)	
	Groundwater monitoring	Equipment (Terrameter, dippers, divers, etc) each in 25 sub regions and in Upper Tana	26 Dippers, 2 ADCP	Progress reports, Payment Voucher, KII
		11 Dedicated Monitoring boreholes	10 completed GWM boreholes (Kenya High School, Kenya polytechnic, Mbagathi Ridge, Kikuyu Springs, GTI, TIWI, Kenol,	Progress reports, Payment Voucher, KII

			Bungoma Town, Bahati, Rongai)	
	Water quality monitoring	Equipment (Paqua labs, balances, ovens, etc) each in 25 sub regions and in Upper Tana	26 complete sets of water quality equipment	Payment Voucher, KII
Information dissemination and awareness creation	Workshops		#	
	Advertisements		#	
	Radio announcements		#	
	Pamphlets		#	
Studies (Critical knowledge products)	1. Prioritization of micro investments projects in the Upper Tana	Report	Technical report availed	Progress report, technical reports
	2. Socio-economic baseline survey			
	3. Physiographical baseline survey for the Upper Tana			
	4. Kikuyu springs recharge study			
	5. Water abstraction and pollution survey for Thiba and Ragat rivers			
	6. ESIA study in relation to the preparation of WRUA action and investment plans			
	7. ESIA of check dams and micro-projects			
	8. Harmonization of laws related to Water Resources Management			
	9. ESIA for CDD projects			
	10. PCR for WRMA components			
	11. Study to align WRM to the requirements of the constitution and determine the institutions financial sustainability			
Catchment restoration activities in the Upper Tana Catchment	WRUA capacity building and SCMP workshops		141	Reports
	Small-scale sediment control structures in Upper Tana	29	2 check dams (at Kaberia and Kieni)	KII, Field visit
	WRUA formation	30	47	Progress report, KII
	SCMP implementation	30 SCMPs implemented	33	Progress report, KII
Training	Training of staff on interpretation and analysis on WRM, procurement, financial management, project management, record keeping and monitoring		81 individual training and 2 group training sessions of a total of 32 people	
	WRUA training on IWRM	75	#	

1. The key features of this sub-component and the complementary component 3 included: (a) Infrastructure support for improving data analysis and interpretation (offices built or refurbished, vehicles and motor cycles, computers, software, and equipment purchased); (b) water resources monitoring support (funding for drilling and equipping dedicated ground water monitoring boreholes, purchase and installation of river gauging and weather stations for monitoring surface water, and equipment for monitoring water quality, analysis and interpretation); (c) catchment protection investments using SCMPs developed by WRUAs; (d) investments in information dissemination and awareness creation on WRMA activities; (e) capacity building of WRMA and community user groups co-managing water resources; and (f) investments in communities livelihood enhancing micro-projects for supporting sustainable management of natural resources.
2. Some activities were not new to WRMA since they were part of their routine activities. The main limitation encountered was the planning of project activities among the staff implementing the project, being either inadequately prepared or having other demanding duties. Too often critical staff was transferred from the project affecting the learning curve and causing delays due to lack of consistent continuity in the new tasks.¹⁹ As a result, WRMA's absorptive capacity for implementing those new core investments through the WRUAs' SCMPs was below the expected levels, although disbursement accelerated in the last year of implementation dramatically, exceeding results targets. Investments for catchment management were critical for promoting livelihood generating activities and SLM practices for reducing erosion and sediments in rivers and reservoirs. The PAD budgeted US\$1.14 million and US\$5.65 million for financing training activities and catchment micro-projects respectively, but only US\$115,000 and US\$1.14 million were spent on them. Some of these WRM investments ended up being done through direct investments by WRMA as agreed at MTR and the 2011 restructuring.
3. As stated in the PAD, "catchment management programs need to integrate conservation activities with the requirements of local farmers and communities to undertake sustainable economic activity". Farmers of all types to be active participants in conservation activities needed to be trained and receive incentives so that conservation and improved production goals coincide. From the US\$6.8 million budget for this to happen, only US\$1.3 million was spent due to the implementation delays, the insufficient absorptive capacity of WRMA for training WRUAs and supporting the SCMPs investments, and the time needed for WRUAs and farmers to assume the new practices. Activities for training and sensitizing of farmers to improve land-use and water protection methods were done but far below the PAD planned levels. In the targeted catchment hotspots, more intensive interventions for erosion control and terracing, small to medium water storage structures and the rehabilitation of existing once, as well as further enhancing of on-farm agronomic practices would have had the stronger targeted impact

¹⁹ At the end of the implementation about 80% of WRMA staff in the project was completely new. Also, human resources for some of the project activities needed to be outsourced to consultants following long procedures.

in WRM. The WRMA officers were expected to work more intensively and closely with those from KFS to develop synergies in the project areas and with their communities.

4. The lack of qualified, equipped, and dedicated contractors for some specialized activities (e.g. drilling and equipping of boreholes) also limited the expected monitoring capacity of water resources. Re-tendering was the way forward to ensure quality work. Although this helped it also contributed to further delays on implementation. The impacts of the slow start-up and the other above mentioned factors resulted in lack of tangible project progress in the first two implementation years. After restructuring the activities involving communities (e.g. SCMPs, WRUA, and CDD subprojects) showed a renewed dynamic. Safeguard issues were adequately sorted and trust and confidence of communities on the project interventions grew. As reduced targets and more clarity was introduced at restructuring, and as WRMA's strengthening support was almost complete by 2010, it also became more committed and effective working with the communities.

5. *Intermediate Indicator #1: 30 WRUAs micro-catchment action plans developed and approved by WRMA* was surpassed as 51 WRUAs had their SCMPs approved. WRMA continues facilitating and overseeing the development, approval and execution of SCMPs through the WRUAs based on participatory approaches and awareness creation. Guidelines for developing the SCMPs and for implementing Integrated Water Resource Management (IWRM) procedures are being followed. Still, investments under SCMP were only 20% of the planned amount and so the SLM improvements implemented, due to the short maturity time left for the adequate execution of the SCMPs investments.

6. Based on the above, the rating for the subcomponent against the original PDO is *moderately unsatisfactory*. If compared with the restructured PDO, progress becomes *satisfactory*: WRMA ended up strengthened and equipped for managing water resources with decentralized activities and involving WRUAs in the preparation and implementation of SCMPs; collecting increasing revenues from water users; and with identified ways for expanding good practices to other catchments. *Hence, the weighted average rating for the subcomponent is considered moderately satisfactory.*

Sub-component 1.2: Consolidation of Irrigation Sector Reforms and Investments

Budget US\$26 million, actual US\$18.1 million as of Project close, 69%

Rating: Moderately Satisfactory

7. The objective of this subcomponent was to contribute to sustainable development of the irrigation sector through consolidation of reforms, and of the National Irrigation Board (NIB); and the development of irrigation schemes in the downstream part of the Nzoia river basin. Outputs would include: (i) achievement of agreed reform targets; (ii) capacity strengthening of the NIB, and of six Irrigation Water Users Associations (IWUAs); (iii) complementing the rehabilitation of 12,800 ha from five public irrigation schemes; and (iv) the development of the Lower Nzoia Irrigation Scheme (LNIS) adding about 3,500 ha of new irrigated area next to the existing Bunyala irrigation scheme.

8. Procurement packages included: (a) preparation of the NIB vision statement, functional analysis, an irrigation strategy and business plan, an Irrigation Act, and NIB Corporate Plan 2008 - 2013; (b) capacity needs assessment, training plan and capacity

building of NIB; (c) preparation of operations manual; (d) feasibility assessment, feasibility study and detailed design of rehabilitation of four irrigation schemes (Mwea, Ahero, West Kano, and Perkerra); (e) detailed design for the new LNIS, (f) rehabilitation works for the four schemes, (g) supervision of works; (h) irrigation development in LNIS; and (i) works supervision of LNIS. It was an over ambitious plan under normal conditions, and moreover considering the weak capacity of NIB, combined with other delaying factors as was the lack of readiness for implementation, the fact that this project was the first Kenyan irrigation investments to be financed by the Bank in 20 years, and the conditionality to define policy guidelines and sector reforms from MoWI side, before some investments could be implemented by the autonomous NIB.

9. The reform targets were to be achieved before July 1, 2008. MoWI developed the Irrigation Policy in 2009, and the development of the Irrigation Act, the draft new I&D Bill were prepared but are still to be approved. The I&D Sector Institutional Reform study was completed in July 2009 but the developed Irrigation Sector Alignment Action Plan and the Irrigation, Drainage & Water Storage Development Investment Plans are still to be implemented. NIB finalized the institutional realignment study in November 2009 but implementation needs the two policy level documents to be approved by MoWI. Once ready they will support and anchor preparation of a vision statement by NIB, functional analysis, development of Irrigation Strategy and Business Plan, Corporate Plan, preparation of an operations manual, capacity needs assessment, preparation of training plan and capacity strengthening of NIB, transfer of the management of agreed irrigation infrastructure to the communities, and commencement of the implementation of an Action Plan to transform NIB into an irrigation service provider. Both MoWI and NIB are still facing challenges to achieve the remaining reform and realignment deliverables of the irrigation subcomponent. At the MoWI level these definitions need long review process with several stakeholders (including cabinet and parliament) out of their control.

10. The objective of capacity building was to empower IWUAs to be able to take charge of key irrigation functions such as O&M, management and administration of tertiary and sub-canal, and also preparing users for the irrigation management transfer (IMT) policy implementation. NIB undertook capacity assessment and development of action plans for the 5 projects' IWUAs, which was finalized in May 2010. Based on these actions plans, NIB has built capacity in these IWUAs on key aspects. NIB delivered capacity building interventions to 11,162 farmers out of which 30% were women and 20% youth against the appraisal target of 8,500 users in the five schemes. Capacity was developed to these IWUAs and once the delayed development of the reformed legal framework is in place, they will be prepared and able to accomplish their goals.

11. Impact of training and capacity building under this subcomponent included: (i) increased role of IWUAs in schemes' management, improved water use planning, avoided potential conflict during water scarcity periods, (ii) clarified roles and responsibilities between NIB and IWUAs, developing synergies; (iii) improved information systems for management; (iv) improved water management; (v) adoption of technologies enhancing productivity (i.e. System of Rice Intensification (SRI)); and (v) enhanced preparation of IWUAs bylaws. However, while increased users ownership and water management participation have been achieved in all the five schemes benefiting from IWUAs capacity building, the poor state of infrastructure and services delivery in

these 4 schemes (West Kano, Ahero, Bunyala and Perkerra) still limits significantly the development of their systems.

12. The Mwea irrigation rehabilitation achieved about 98% progress by the end of the project. Removal of piles of soil from de-silted and constructed canals as well as from other structure sites and preparation of an O&M manual which include flow measuring gauges calibration and as-built drawings represent the remaining 2%. These activities are expected to be successfully completed by the end of defects liability period and about 9,500 ha of irrigable land is now upgraded (including new outgrowers brought in to the scheme) with improved irrigation and an active IWUA in place.

13. The construction of the new Lower Nzoia irrigation scheme was supposed to begin early during the project implementation period but was delayed partially due to lack of implementation readiness, slow procurement of consultancies, and poor quality of contracted detailed designs²⁰. Given the proximity of the closing date and documented concerns about absorption, there was insufficient time to carry out both the detailed design and the construction. It was then decided and agreed to prepare a new detailed design for 7,000 ha in Lower Nzoia (including the originally planned first and second phase) which was contracted to an international consultant in February 2013. This work has advanced well in spite of the tight schedule, and the actual construction will be financed under the new Bank financed KWSCR-1 approved in June 2013.

14. *Intermediate Indicator #1: Number of users benefitting from improved irrigation service delivery (30,000 users)*. Besides 10,000 users expected to benefit from Lower Nzoia, the rehabilitation of Mwea, Ahero, West Kano, Bunyala and Perkerra schemes targeted to intensify the use of existing 12,800 ha benefitting about 20,000 users, through improved infrastructure and IWUAs enhanced management. At project restructuring the target for rehabilitation was reduced to only the Mwea system with 9427 ha, but still the IWUAs strengthening would reach all the schemes. At the end of the project 9740 ha were rehabilitated in Mwea scheme²¹. Out of the total original 30,000 users targeted to be benefit from improved irrigation service in Lower Nzoia and Mwea, 11,000 from Mwea benefitted with rehabilitation and improved service. Also, about 4200 farmers have benefitted through improved irrigation service as their IWUAs were strengthened but not from the planned systems' rehabilitation. Because Lower Nzoia irrigation was not constructed under NRMP (but was transferred to KWSCR-1), the original target to benefit a total of 30,000 farmers was not fully achieved.

15. *Intermediate Indicator #2: Area under irrigation in project intervention areas (3,500 ha)*. This target was partially achieved. The new construction of the Lower Nzoia Irrigation scheme was not implemented under NRMP is being financed under the new

²⁰After the feasibility study was prepared in 2008/9, a national consulting firm was hired on January 2010 for the detail design after two years of procurement process. The selection of this firm which was unable to deliver the required quality design on time, and the long decision process of hiring and termination of the contract on May 2012 (after the company proved unsuccessful), have contributed to this underperformance.

²¹Works included:(i) dykes for flood control; (ii) lining and the box culverts installed in the canal running across the town avoiding the release of domestic wastes polluting the canals; (iii) lining of main canals improving the conveyance efficiency; and (iv) construction of gates and other water control structures for improving control of water flows and delivery. Waterborne diseases were also reduced significantly.

IDA-supported Water Security and Climate Resilience Project (WSCR) approved in 2013. As such, no new irrigated area was delivered by NRMP for the Lower Nzoia scheme. For the Mwea irrigation rehabilitation works, however, 9500 ha has been improved by rehabilitating 7,250 ha and expanding 1,250 ha into out-grower areas. This achievement is more than a planned target of 9,427 ha. Note that the PAD's results framework's indicator did not distinguish between new irrigation and rehabilitated irrigation schemes and listed the target as a generic 3500 ha. The PAD text, however, gave a rehabilitation target of 12,800 ha and an expanded irrigated area target of 3500 ha. The RP's results framework distinguished explicitly between the two and the Project tracked both to closure.

16. *Intermediate Indicator #3: % cost recovery for O&M of the project's irrigation schemes* target at appraisal was 70% from participating farmers. Through strengthening of IWUAs, the project aimed to enhance the levels of payments of O&M charges. The higher cost recovery (more than 90% in Mwea) confirms that farmers' enhanced input and governance through capacity building and improved irrigation water delivery, is capable of sustaining production by covering a higher part of the costs of services delivered. With the increased availability of reliable water supply achieved due to the intervention, Mwea's IWUAs are proposing to increase the current level of O&M fees by 50%.

17. *Intermediate Indicator #4: Percentage of scheme users satisfied with NIB/IWUAs' O&M Services* has increased to 95%. At baseline, the satisfaction level was only 54%. Issues raised at baseline were, in order of importance: mismanagement of IWUAs, inefficient service provision, high water fees, the 'no consultative approach of the group leaders' and poor participation by members. Capacity building strengthened the IWUAs and their roles and responsibilities are now facilitating the implementation of the O&M plans and improving water distribution through joint collaboration with NIB.

18. In sum, the reform process in the irrigation sector is still far from being consolidated, the capacity building was implemented adequately, but the investment in rehabilitation and construction of irrigation infrastructure was only completed in MRS. The subcomponent spent only US\$16 million of the budgeted funds, 61% of the allocated US\$26.3 million. Even when compared with the restructured PDO which included the construction of Lower Nzoia, and in spite of the commendable efforts displayed by the NIB, *the overall rating for the irrigation subcomponent output is moderately unsatisfactory.*

Component 2: Management of Forest Resources

Rating: Moderately Satisfactory

Table 2.2 Outputs from Component 2 (from the Borrower's Completion Report)

Activity	Indicators	Appraisal Target	Actual achievement	Remarks
Developing and implementing	Completion rate (%) of Forest Service strategic plan implementation	100	100*	The KFS strategic plan had about 129 activities. Of the aforementioned number of

Activity	Indicators	Appraisal Target	Actual achievement	Remarks
a KFS strategic plan				activities, 28 were selected for implementation under NRMP. The completion rating is based on these activities which were all implemented.
	Completion rate (%) of Business plan implementation	100	*	Developed under “Miti Mingi Initiative”. Therefore it was not rated even though it was planned ta appraisal.
	Completion rate (%) of human development plan implementation	100	*	The plan was prepared with support of NRMP. Was not rated because it is a long-term plan whose implementation will go beyond the life of the project.
Construction and Rehabilitation of office buildings	No. of new buildings constructed.	9	8	The buildings constructed include; Information Centre in Nairobi, Hospitality and Conference facility at Londiani, Offices cum lecture rooms at University of Eldoret and 5 zonal offices at Bungoma, Nandi, West Pokot, Vihiga and Trans-Nzoia. In spite of the major achievements indicated, the KFS headquarter that was envisioned was dropped in May 2013 due to time constrains.
	No. of building rehabilitated		1	Dormitory was rehabilitated at Londiani campus
	Completion rate (%) of Equipping the constructed and rehabilitated offices	100	*	Furniture, 100 computers for field offices, 200 mobile tablets, communication equipment, laptops, TV sets, VCDs among other equipment were purchased. It was not possible to rate because it was not clear whether the needs were met.
Purchase of Vehicles, motorcycles and firefighting equipment	No. of vehicles bought		64	KFS bought 61 4x4 vehicles, a minibus, a saloon car and a 7-ton truck.
	No. of motorcycles bought		36	The purchase of an additional 115 motorcycles was cancelled due to challenges in obtaining tax exemptions and time constraints.
	No. of community training workshops held		15	Workshops were held for training of local communities in various forest zonal areas including VMGs. Over 900 persons were trained in different

Activity	Indicators	Appraisal Target	Actual achievement	Remarks
Enhancing human resources capacity within the forest sector.				areas under NRMP.
	No. of KFS Staff trained under various expertise		388	KFS staff were trained in various skills including forest assessment, transformative leadership, VMGs conflict management and Participatory forest management skills.
	No. of new employees (male/female) and their profession		4	KFS employed an MIS expert, Social Development Specialist and 2 clerks of works, Procurement
Forest resources inventory including demarcating, mapping and assessments.	No. of forest Maps Digitized	461	460	All forest maps have been digitized except 1
	Completion rate (%) of the production and public availability of new forest cover maps of Kenya	-	-	Activities under this indicator were dropped during project restructuring in 2011. The activity was carried out under Climate Change Response Program through a grant from the Japanese government.
	Boundary demarcation of forest reserves in KMs.		1600	Digitization of the boundaries was completed on Kakamega, Mt. Elgon, Cherangani and Aberdares forest ecosystem blocks.
	Forest Resources Assessment (FRA) in acreage	120,000	140,000	The assessment was done for plantation forests only but indigenous and farm forests were not.
Planting or reforestation of degraded forest areas.	New area brought under forest cover in project intervention areas.	2,500	7,124	The re-afforested areas were for plantations in degraded areas
	No. of model nurseries established and seedlings planted so far both exotic/indigenous.	3	*	1 design each for the Model Tree Nurseries and Farm Forest Clinics which were to be replicated are complete but due to time constrains are yet to be implemented.
Design and implementation of a strategy to improve forest revenue	Completion rate (%) of Developing and implementing of an improved forest revenue system.	-	-	During the transformation of the Forest Department to KFS, challenges unforeseen during appraisal led to concentration on key activities.
Developing and	RPF, ESMF and IPPF			These were developed and utilized during NRMP implementation.
	No. of Project Activities that required EIA reports and reports prepared.		8	EIA reports were prepared for all the 8 buildings constructed. Information Centre in Nairobi,

Activity	Indicators	Appraisal Target	Actual achievement	Remarks
implementing social safeguards				Hospitality and Conference facility at Londiani, Offices cum lecture rooms at University of Eldoret and 5 zonal offices at Bungoma, Nandi, West Pokot, Vihiga and Trans-Nzoia.
	No. of Vulnerable and Marginalized Group Plans prepared and activities initiated according to defined work-schedules	4	7	7 VMG plans were developed and are under implementation.
	No. of RAP reports prepared	-	-	No resettlement was undertaken during NRMP implementation. Therefore RAPs were not prepared.
Compensation	No. of households compensated and relocated	-	-	No resettlement was undertaken during NRMP implementation. Therefore RAPs were not prepared.
Relocation of community services	No. and type of community services relocated and location	-	-	None of the VMGs were relocated during NRMP. Therefore no services were relocated.
Support or establishing of alternative livelihoods	No. of livelihood projects supported.		1700 households	These were projects captured for the livelihood activities implemented by VMGs. KFS in collaboration with other implementing agencies (NIB & WRMA) also jointly implemented livelihood activities at the Upper Tana Catchment area under NRMP component 3 that was implemented by WRMA.
Development and piloting of PES schemes and facilitate carbon emission trading	No. of schemes operational	-	-	Activities under this indicator were dropped during restructuring
Partnership models for community participation and benefit sharing	No. of models developed and any benefits shared so far.	-	-	These were not developed during NRMP.
	No. of conflict addressed		6	Conflict redress mechanism was developed and used to solve some of the conflicts six area including Trans-Nzoia, West Pokot and Embotut.
	No. of community groups engaged in joint forest management.	-	-	A partnership framework for forest conservation was developed but no formal agreements were made in joint forest management.

Activity	Indicators	Appraisal Target	Actual achievement	Remarks
	No. of people who participated in capacity Building in Participatory Forest Management - PFM		300	CFA committee members were trained.
Ecosystem Based Forest Management Plans and participatory forest management plans.	No. of Participatory Forest Management Plans Prepared and implementation completion rate (%).		6	Five year PFMPs were developed and are under implementation in various areas including Zaina, Kaberua, Timboroa, Lorenge, Sengalo and Serengoni.
	No. of Ecosystem Management Plans Prepared and implementation completion rate (%).		2	Five year plans were prepared for Aberdares and kakamega and are currently under implementation.
Promotion of Community and Private Sector Investment in Commercial	No. of KFS staff trained in facilitating their uptake of investment opportunities in private sector		4,800	KFS staff were trained on investment opportunities.
	No. of workshops held to sensitize investment opportunities and training communities in relevant skills for investment		1	A workshop was organized at Londiani targeting forest officers
	No. of community and private sector players involved in forest management or are on the waiting list	-	-	Activities under this indicator were halted by a court injunction requested by NACOFA.
	Completion rate (%) of equipping the Centre and installation of ICT infrastructure.	-	-	The Information centre was equipped with computers and other ICT equipment
	No. of forest blocks transferred to private entities and/or communities for management of production;	-	-	The transfer of forest blocks to private sector was halted by a court injunction sought by NACOFA.
	Completion rate (%) of Developing and implementing of instruments for transparent resources valuation and tendering;	-	-	Activities under this indicator were halted by a court injunction sought by NACOFA.
	Completion rate (%) of developing and implementing of memoranda, leases and contract models.	-	-	Activities under this indicator were halted by a court injunction sought by NACOFA.
	Completion rate (%) of developing and implementing an improved log sale system	-	-	Activities under this indicator were halted by a court injunction sought by NACOFA.
	No. of study tours on commercialization of forest resources to enable community and private sector investment.	-	-	Activities under this indicator were halted by a court injunction sought by NACOFA.
	Completion rate (%) of developing and implementing an action plan for improving forest taxation and investment environment in plantations	-	-	Activities under this indicator were halted by a court injunction sought by NACOFA.

19. Forests play a critical role in Kenya's society and culture: conservation and provision of water resources, carbon sinks, employment, wildlife habitat, reduction of soil erosion and production of raw materials. However, weak capacity in forest institutions, political interference, inadequate business environment and budgetary allocation, corrupt practices, improper disposal of forest land and preferential licensing led to poor management of forests. The project-supported reforms aimed to strengthen the capacity of the KFS to effectively perform its mandate enabling institutional arrangements to foster forest governance building both community and staff capacity, improving revenue capture not supported in the GOK budget, and supporting KFS to become a semi-autonomous and effective institution. The implementation of NRMP CDD VMGPs resulted in a continuous reduction in safeguard-related complaints from VMGs due to efficient response from KFS using the grievance mechanism developed under the project, involving quick responses to enquires and a continued reorientation of KFS field staff, in particular forest guards, towards greater community sensitivity.

Subcomponent 2.1 Forest Sector Institutional Reforms

Budget: US\$9.0 million, actual US\$8.4 million as of Project close, 93%

Rating: Satisfactory

20. *The Forest Act led a radical shift in policy towards the engagement of communities in forest management* giving considerable weight to the participation of CFAs. The CFAs established and supported have gained considerable practical knowledge in NRM. Their continued involvement in the NRM and partnership with KFS ensures that achievements will be sustained beyond the project lifetime. The implementation of VMGPs and the institutionalization of the participatory consultations approach is an important effort towards sustainability of project gains raising the prospects of continued involvement of VMGs in forest protection and management. Initially, KFS was ill-placed to effectively implement this approach as it had few skills in social development issues. The NRMP has given KFS the practical experience and the process training required for achieving this task through capacity building, training and the livelihoods supported micro-projects. At closing, good progress was also made in infrastructural development areas with the construction of key buildings²², as well as the purchase of 61 vehicles and 36 motorcycles to support forest conservation and extension activities.

21. At restructuring the project dropped two dated covenants under the forest component, as their activities were addressed elsewhere: (i) *the rapid assessment of forest resources* was financed by the Government of Japan as part of the REDD readiness process in Kenya; and (ii) *the review of relevant land related policies and laws and identifying areas in need of harmonization with respect to resettlement* was taken as part of the development of a National Resettlement Policy. A "Draft Evictions and Resettlement Guidelines" was developed by the Ministry of Lands and the review of all laws and regulations to ensure consistency with the 2010 Kenya Constitution was ongoing. The restructured project freed credit proceeds to be used to: (i) provide expertise

²²(KFS Information Centre in Nairobi, Hospitality and Conference facility at Londiani, and the Office cum lecture rooms for Department of Forestry and Wood Science at Moi University, Eldoret)

in GIS/remote sensing; (ii) improve capacity building for KFS and other stakeholders; and (iii) rehabilitate other existing infrastructure. Resources were also shifted to better align things to institutional priorities (e.g. water allocation/quality monitoring and control, climate change).

22. *Intermediate Indicator #1: implementation of KFS strategic plan activities - 70% completion at closing* was attained. The strategic plan was formally launched in 2009 and the institutional capacity of KFS was significantly enhanced through sector reforms, training of staff, infrastructure development, provision of vehicles, and increased revenues aiming to support forest conservation and extension activities. The ISO Certification of the KFS process is awaiting issuance of the official certificate.

Subcomponent 2.2: Community Participation and Benefit Sharing

Budget: US\$8.5 million, actual US\$7.9 million as of Project close, 92.9%

Rating: Moderately Unsatisfactory

23. This subcomponent aimed to enhance community participation and benefit sharing by identifying and prioritizing an array of partnership models to implement the legislative framework and improve benefit sharing, as well as preparing a framework to curb forest degradation and enhance sustainable access by local communities to forest resources.

24. *Intermediate Indicator #1: New area brought under forest cover in project intervention areas.* The achievement was double the end of project target, with 7,124 ha under forest cover achieved by June 2013, against the target of 3,500 Ha. This accomplishment was attained through the involvement of the CFAs and intensive planting of trees during the long rain seasons.

25. *Intermediate Indicator #2: Number of schemes incorporating payment for environmental services (PES).* The original target (dropped at restructuring) was that 50 schemes would be originating PES at closing. The target was not attained: there is no PES scheme realized in the project areas. KFS is anticipating increasing its revenue collection from PES schemes, carbon trading, forest products harvesting and form designating ecotourism areas. The participation of local communities in the management of forests is expected to reduce the cost of enforcing norms and of general forest management. KFS as a statutory agency will receive funding from the exchequer to supplement revenues to fund its activities and also for enhancing relations with donors and other development partners.

26. *Intermediate Indicator #3: 20 VMGPs prepared and activities initiated according to defined work schedules:* At closing, 7 VMGPs initiated interventions according to work schedules. Benefits and positive impacts are being realized including: (i) change of attitude by both KFS and the VMGs helping to create a conducive partnership and working atmosphere; (ii) capacity building through the training of the VMGs in group dynamics, conflict resolution within community and with the KFS (iii) VMGs are participating fully in the NRMP safeguard activities; (iv) better conservation of forests, and (v) improved income for many VMGs who had or are implementing micro-projects.

27. *Intermediate Indicator #4: KFS technical staff (400) trained in participatory forest management (PFM) was achieved as 100 KFS technical staff received training in PFM and 388 received training on VMGs safeguards policy.*

28. In spite of significant progress the KFS has still to institutionalize proper benefit sharing models between itself and the communities involved in the NRM activities, thereby synchronizing the interest of partners in NRM. It is still necessary to clarify cost and benefit sharing options including the use of PES and the ways in which FMPs would be developed in the context of joint management. KFS incorporated a full-time Social Development Specialist to support the agency’s engagements with communities beyond the life of NRMP in addition to all the other specialists who were contracted for NRMP.

Subcomponent 2.3: Community and Private Sector Investment in Commercial Forestry

Budget: US\$2.4 million, actual US\$2.2 million as of Project close, 92%

Rating: Moderately Unsatisfactory

29. *Intermediate Indicator #1: Five production forests management transferred to the private sector target could not be achieved. Progress towards this goal included the preparation of guidelines for the transfer of management of forests to the private sector but the actual transfer process could not follow as it was stopped by the National Alliance of Community Forest Associations (NACOFA) through a court injunction.*

Component 3: Livelihoods Investments in the Upper Tana Catchment

Budget: US\$5.5 million, actual cost US\$9.3 million as of Project close, 169%

Rating: Highly Satisfactory

Table 2.3 Outputs from Component 3 (from the Borrower’s Completion Report)

Main activity	Sub-activities	Target Outputs	Achievements
Livelihood enhancing NRM micro-projects	CDD manual development	CDD manual	CDD manual
	Selection of implementing CBOs	Develop selection criteria	
	Training of CBOs		# of trainings (119,771 people in the CBOs that received training)
	Implementation of CDD projects	500 CBO micro-projects	706 CBO micro-projects
	Environmental Social Audit		#

30. Implemented by WRMA, this component’s outcome is considered to be *highly satisfactory* not only because it has fully been disbursed and met all its targets, but also because it shows results that have, or are likely to generate remarkable impacts (i.e. energy efficient *jikos* and biogas plants at schools – an activity which has displaced firewood use by an estimated 75%) benefiting CBOs through environmentally friendly livelihoods schemes. Using a CDD approach, the IA supported proposals from communities in the treated catchments and forest perimeters, investing in livelihood enhancing schemes that directly or indirectly favour natural resources. Implementation had a slow uptake at the initial stages and a rapid increase towards the project final years as momentum grew. The component reached a total of 4145 direct beneficiaries of community-driven livelihoods support micro-projects, which together with their household members add to about 25,000 beneficiaries. While it is too early to fully assess

impacts in terms of improvements in the people’s livelihoods, indications are that if the current momentum among beneficiaries is sustained, livelihoods will continue to improve. It is expected that new schemes will be developed as other communities and projects adopt similar schemes.

31. *Intermediate Indicator #1: 500 CDD livelihood based micro-projects supported.* Target was surpassed by 42 percent. A total of 713 CBOs with a membership of 119,771 were mobilized and trained by the financed proposals from communities in the treatment catchments and forest perimeters. About 51% of members were women. The four public calls attracted 3,332 proposals out of which 706 schemes were funded costing Ksh 404 million (80% financed by the project grants and 20 percent by CBOs). About 260 line agency staff and 4721 CBO leaders (2644 men and 2077 women) were trained on governance, financial management, procurement, M&E and reporting.

32. The WRMA was the Lead Agency and responsible for: the implementation of the NRM livelihood component, chairing the Regional Project Implementation Committee (RPIC)²³, calling for meetings, supervision of the activities of the NRM Secretariat and instituting measures to recover resources in the event of misuse of the funds. The three IAs were responsible for the operations of their respective CBOs and accountable for supervising their performance, fiscal management and satisfactory conclusion of the group activities. The RPIC also engaged all relevant stakeholders in the process of providing the required support to CBOs.

33. The NRM Secretariat reported to the RPIC. Responsibilities included: publishing of the launch of the call for proposals, ensuring that all steps of the process were followed, ensuring sufficient material concerning manuals and other information required was available on the web site (<http://www.wrma.or.ke>), training POs and line agency staff on the use of CDD manual and field verification, screening of proposals, maintaining data base and presenting to the RPIC the evaluated proposals and recommendations for selection, monitoring and participating in field verification activities, maintaining the database on the status of all proposals and communicating to all stakeholders.

34. A total of 25 different types of enterprises and 706 micro-projects were funded and implemented following the four calls for presentation of proposals. Table 2.4 provides details on the type of CDD schemes financed and their frequency.

Table 1: Number of Funded Projects per Enterprise

Enterprises	No. of projects	% of total
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²³ The technical agencies represented on the RPIC included the Ministries of Agriculture, Livestock, Water and Irrigation, Fisheries, and Gender and Social Development; NEMA, TARDA, KENGEN, etc. RPIC’s responsibilities included: providing for oversight linkages and cooperation between stakeholders in support of CBOs in relation to their specific activities, approving and reviewing of the CDD manual and the system of operations, approving proposals and determination of fund allocations, approval of projects where cost exceeded funding ceiling, assuring support of groups in the implementation of their activities, ensuring the role and functions of the respective stakeholders, notifying and reporting progress and ensuring respective line agencies field staff were informed and supported NRMP livelihood enhancing activities.

Artificial Insemination	7	1.0
Bamboo	1	0.1
Bee Keeping	42	6.0
Bio-latrines	23	3.2
Brick Making	3	0.4
Capacity Building	51	7.2
Cooking Oil Press	1	0.1
Dairy Cows	22	3.1
Dairy Goat	88	12.5
Value Addition	3	0.4
Irrigation	3	0.4
Energy Saving Stoves	114	16.1
Fish Pond	29	4.1
Fodder Bulking	10	1.4
Food Processing	4	0.6
Greenhouse	30	4.3
Pigs	3	0.4
Poultry	127	18
Rabbit Meat Butchery	1	0.1
Rabbits	37	5.2
Seed Bulking	22	3.1
Tree Nursery	85	12.0
TOTAL	706	100

Source: NRM Secretariat, June 2013

35. Each enterprise in the list of micro-projects had technical support notes to help the CBO officials and the service provider to understand in detail some technical aspects of the enterprises. The notes provided detailed description on: the nature of the enterprise, its relevance to NRM, expected benefits to be distributed within and beyond the group, outputs to be attained within the 12 months of implementation, conditions to be met by the applicants, technical training budget, detailed bill of quantities, schedule of activities and signatures of CBO/PO officials.

Component 4: Project Management, M&E

Budget US\$4.3 million, actual cost US\$4.5 million as of Project close, 105%

Rating: Moderately Satisfactory

Table 2.5 Outputs from Component 4 (from the Borrower's Completion Report)

Category	Description	Remarks
Consultancies	<ul style="list-style-type: none"> • Development of NRM project MIS • Undertaking the 1st Environmental Audit • Development of NRM Project Communication Strategy • Preparation of National Irrigation Development Strategy (with NIB) • Preparation of Irrigation Reform Implementation strategy (with NIB) • Undertaking the 2nd Environmental Audit • Upgrading the NRM project Management Information System (MIS) • Developing GIS and carrying out surveying & mapping of NRM project activities • Carrying out final survey for NRM project • Undertaking the 3rd Environmental Audit 	A total of 12 Consultancies were completed, often in conjunction with NIB, WRMA and KFS.

Category	Description	Remarks	
	<ul style="list-style-type: none"> Preparation of the draft NRM Project Completion Report (PCR) Preparation of the National Groundwater Policy (with WRMA) 		
Works	Upgrading and rehabilitation of 132 Rain Gauging Stations (RGSs)	Implemented on behalf of WRMA. The rehabilitation works were completed in six regions namely, Lake Victoria South Catchment region, Rift Valley Catchment region, Ewaso Ngiro North Catchment region, Tana Catchment region, Athi Catchment region, Lake Victoria North Catchment region.	
Goods	Laptops	13	These were procured to facilitate the operation of the Project Coordination Office (PCO) in providing managerial oversight and project coordination, management, monitoring and evaluation.
	Tablet laptops	5	
	Desktop computers	11	
	Digital cameras	7	
	APC UPS	11	
	LCD Projector	2	
	Printer fax	1	
	Vehicles (Toyota Prado, Pajero Mitsubishi, Toyota Double Cabin)	3	
	Duplex printers	3	
	IMAC Apple	1	
	IPADs	6	
	Secretarial chairs	4	
	Executive high back chair	8	
	Internet D-link	2	
	Coffee table	2	
	Photocopy machine	1	
	Filling rack	1	
	Visitors chair	7	
	Executive desk with lockable drawers	2	
	Secretarial set	3	
	Executive visitors chair	8	
	High cabinet with glass doors	4	
	Executive desk	1	
Computer desk	1		
Secretarial desk	1		
Bookshelf with wooden and glass doors	1		
Four drawer metal cabinet	5		
Coat hanger	4		
Office reception desk	1		

36. Project management, communications, M&E and reporting functions were performed adequately. Several studies have been undertaken through consultancies, including: (i) the development and upgrading of the management information system (MIS); (ii) three environmental audits; (iii) development of the communications strategy; (iv) preparation of the National Irrigation Development Strategy and of the Irrigation Reform Implementation Strategy; (v) development geographic information system (GIS); (vi) surveys and mapping of NRMP activities; (vii) preparation of the National Groundwater Policy; and (viii) preparation of the Project Completion Report. Note that

the water resources monitoring and policy outputs financed under Component 4 were delivered on behalf of WRMA for Sub-component 1.1.

37. The planned support for developing and implementing the national resettlement policy for which a budget of US\$1.6 million was allocated at appraisal was not implemented, as it was considered to be outside MoWI or MENR responsibilities²⁴. In January 2013, however, a new resettlement law was promulgated by the GoK (again, outside NRMP) which is close in spirit and substance to the World Bank's resettlement policy.

²⁴ Land use and tenure have been contentious issues in Kenya, which is characterized by high levels of inequality and landlessness, illegal and irregular allocation of public land, and inefficiencies and corruption in land administration and management. These issues are particularly vexing in the 20% of land that is arable. In 1960, as Kenya prepared for independence, seven million acres (or about half of cultivated land) was in the hands of European settlers. A post-independence land reform program transferred land to Africans, but did not return land to all of those who were landless or had been dispossessed. The resulting landlessness and concentrated land ownership were exacerbated by political patronage and corruption, especially through illegal and irregular allocation of public land. As a result, about 15 million people in rural parts of the country are landless or own less than two acres of land. In early December 2009, Parliament adopted a new land policy which *inter alia* seeks to restore the historic claims of indigenous communities; develop new land tenure systems and laws; recognize community, indigenous and customary land rights; and introduce land banking to ensure that the state has land for emergency services. Given the complexity of land issues in Kenya, land reform is likely to take decades to accomplish.

Annex 3. Economic and Financial Analysis

1. Introduction and Objectives

1. In 2007, the World Bank developed the NRMP with the GoK with the objective to enhance the institutional capacity to manage water and forest resources in a sustainable and participatory way. Overall, the project was designed to help reducing the incidence and severity of water shocks in river catchments, improve forest and watershed management, and improve the livelihoods of communities participating in the co-management of water and forests. The project was designed around three technical components including water resource management and irrigation, management of forest resources, and livelihood investments through community-driven development approaches. The components included aspects of capacity building, institutional reforms, community participation and benefit sharing, and community and private sector investments

2. The rationale for this project was built on the linkages between the management and development of water resources, including watershed management, and the performance of the economy, including the incidence of poverty. The consequences of poor management of resources and long term under-investment in water related infrastructure and poor watershed management has resulted in the country being critically vulnerable to water shocks of drought and flood. Recurrent droughts and floods have consequently directly resulted in identifiable impacts on the national economy - the largely unrecorded impacts on the poorest sections of the Kenyan population have been devastating and have contributed to sustained and deepening poverty in many regions in the country.

3. This economic analysis represents an ex-post evaluation of the economic efficiency of the project after project completion. It compares achieved economic impact and project economic efficiency with the assumptions made about economic impacts anticipated at design stage and analyses whether the anticipated impacts were achieved. Insofar, it serves as a measure to evaluate how realistic ex-ante expectations about economic efficiency and development impacts were. At design stage, financial and economic analysis were carried out for selected project components and sub-components, but not aggregated for the project as a whole. As this project was restructured at mid-term, the ex-post analysis conducted here considered the entire project, but will compare with the ex-ante results (see Section 6, Conclusion.).

4. The economic assessment of project impacts needs to be embedded into a brief discussion of the economic development and environmental change that has taken place in the country at macro-scale during project implementation. In addition to comparing the ex-post results with the ex-ante efficiency calculations, this will allow for a much more thorough interpretation of results, especially differentiating between with and without project developments. It will also support the

contextualization of the analysis providing input into the selection and justification of analytical parameters used for the economic efficiency calculations.

2. Environmental and Economic Context

2.1. Environment

5. At the time of project preparation, Kenya's natural resource base was assessed to be under threat from natural disasters and mismanagement, despite its critical role for the Kenyan economy and for the well-being of all Kenyans. For example, water shocks resulted in an estimated decline of 11%, 16%, and 16% of GDP respectively during the three consecutive years of floods (1997-98) and droughts (1998-2000). The PAD stated that Kenya constituted one of the most degraded areas in the region with about 70% of the population living in the 12% of total land area (581,679 km²) that is classified as being of medium to high potential for agriculture and livestock production. The growing population and the resulting increase in demand for land, energy and water is putting tremendous pressure on the natural resource base.

6. Since then, environmental challenges have diversified and new dimensions, especially climate change, have started to show impact at the macro-level. For a recently approved Water Security and Climate Resilience project it was analyzed that high inter-annual and intra-annual rainfall variability result in frequent droughts and floods, so severe that years of infrastructure investments for economic growth can be undone in a single extreme event. A recently completed Post-Disaster Needs Assessment estimated that the overall effects of the 2008-11 drought cost the economy US\$12.1 billion, which includes US\$ 805.6 million for destruction of physical and durable assets and US\$11.3 billion for losses in economic flows across all sectors. According to the Pilot Program for Climate Resilience Climate Variability Index, Kenya has a history of greater disaster risk – particularly droughts and floods – than the majority of sub-Saharan African countries, at least when assessed over the past 30 years.⁷ 6. Climate variability and hydro-climatic shocks (droughts and floods) impact the poor disproportionately. It is estimated that about 50.6% of the population lacks access to adequate food and, even the little it has is of poor nutritional quality. The incidence and prevalence of food insecurity is more extreme in ASALs. This is largely due to the regular recurrence of droughts and floods that have repeatedly led to massive crop/livestock failure and, in the worst cases, to severe famine.

7. To date, Kenya has limited freshwater endowments and is already classified as a chronically 'water scarce' country in absolute and relative terms. The mere 526 m³ per capita annual freshwater availability places it in the bottom 8% of countries globally. Over 80% of the country is comprised of arid or semi-arid lands (ASALs). A further complicating factor is that approximately 54% of Kenya's water resources are shared with neighboring countries. There is growing competition (and even conflict) over limited water resources, with rising population, economic growth, and urbanization placing increasing pressures on the water resource base. Severe degradation, primarily caused by deforestation and unsuitable agricultural practices, of the country's key water

catchment areas (known as “water towers”) has exacerbated this situation. At the subnational level, the spatial mismatch between water availability and rising demands is in many cases even more extreme; a 2012 World Bank study found that areas around the major cities of Nairobi, Mombasa, and some western centers are the most critically water stressed and this is projected to worsen by 2030. Yet newly discovered groundwater resources, if able to be developed economically, could be a game changer.

8. Against this very brief summary of the development of the state of the environment during project implementation, the importance that project achievements need to be evaluated in a “with and without project” situation – as required by standard economic analysis – becomes evident (compare also Section 4 of this annex). The analysis underlines that even though the current situation regarding water management Kenya has probably become more severe in Kenya as a whole, the without project situation – especially in the targeted project areas – is likely to be even worse. Therefore, the achievements of the project are the incremental improvements compared to a deteriorating “without” situation.

2.2. Economic

9. Kenya has experienced varied and unequal growth since independence in 1963. In its early years of independence, Kenya was the most prosperous country in East Africa, its GDP per capita rising by 38% between 1960 and 1980. The following two decades to 2000, however, recorded a zero increase in per capita GDP, while per capita income in 2003, at US\$360, was lower than in 1990. At project preparation, the poverty rate in Kenya was 52%. Kenya’s social indicators had declined in tandem with the economy; infant mortality rose from 64 (per 1,000 births) in 1990 to 79 in 2004. Life expectancy declined from 58 in 1990 to 48 years in 2004, in part due to the HIV/AIDS epidemic. The persisting hunger of children is evidenced in the 20% of under-fives who are underweight, and almost one in three (31%) who are wasting (World Development Indicators, 2006). These are averages, but Kenya is a highly unequal society, with exclusion reflecting stratification by class, gender, and region. Kenya’s Gini coefficient for household income, at 0.43, is much higher than that of its neighbors, Ethiopia and Tanzania, whose coefficients stand at 0.30 and 0.35 respectively. This ranked Kenya as one of the more unequal countries in the world and in Sub-Saharan Africa.

Table 3.1: Selected Socio-economic indicators pre and post project

Socio-economic Indicator	2007*	2011*
GDP (billion US\$)	13.0 (2001)	33.6
GNI per capita (US\$)	480	820
GDP growth (%)	4.5% (2001-11)	4.4%
Poverty rate (%)	45.9 (2005)	46%
Population (million people)	35.1	41.6
Life expectancy (years)	57	60
Literacy rate (%)	72% (2009)	87% (2013)
Infant mortality (per 1000 live births)	57	50

Sources: Kenya at a glance 2013 (2011 data); WDI database; *if not otherwise stated in parenthesis

10. At present, Kenya's economy continues to stabilize gradually, but it still remains vulnerable to internal and external shocks. Kenya's economy is still operating below its potential. However, given the domestic and global environment, the growth rate of 4.6 percent achieved in 2012 is considered satisfactory and Kenya's poverty level is estimated to have declined from 47% in 2005. This will be confirmed by the new household survey. After a peaceful election and transition in 2013, growth is projected to rise to 5.7% in 2013 and 6.0% in 2014, supported by lower interest rates and higher investment growth.

11. According to the most recent Kenya Economic Update, the macroeconomic conditions in the country are favorable. The economy projected growth for 2013 was 5.0% and 5.1% in 2014. Inflation remains low, the fiscal deficit remains manageable, and the exchange rate remains stable. The government has maintained fiscal discipline, adopting domestic revenue-raising measures. However, execution of the budget, especially investment spending, leaves room for improvement. Higher execution rates would help promote the much sought after growth take-off. Small and medium-size enterprises (SMEs) cite the cost of credit as a barrier to bank financing. High lending rates can be traced to a range of factors, including the macroeconomic environment, high bank overheads and profits, information gaps, the structure of the banking sector, and the volatility of the risk-free return. A multipronged approach is needed to increase bank lending to this critical sector if growth and job creation are to take-off.

12. The summary of the progress made on many key development indicators at macro-level during project implementation, emphasizes that the attribution of economic development achievements needs to be done with care. Consequently, this economic analysis only includes the most immediate and direct impacts generated by the project as they were identified with the project components during project development and implementation. Secondary economic benefits are only qualitatively discussed.

3. Economic Benefits generated by the Project

3.1. Overview

13. With its different components and multiple areas of investments, the NRM project generated a diverse portfolio of economic benefits ranging from direct, tangible benefits to indirect, intangible benefits. A direct, tangible benefit is, for example, the increase in wood production through agroforestry systems in the targeted project areas or the reduction of GHG emissions through sequestration of carbon. On the other side of the scale, indirect and intangible economic benefits of the project are, for example, improved schooling results of children triggered by a reduction in indoor air pollution (IAP) resulting from a provision of cleaner cooking solutions or the improvement of the public administration and the associated delivery of public services triggered by the capacity building of the forest administration supported by the project. Table 3.2 provides a limited overview of selected examples of the four categories of benefits that can be associated with the project.

14. Given the difficulties of assigning monetary benefits to the entire range of economic benefits generated by the project, only a few selected economic benefits are included in the quantitative ex-post economic assessment of project feasibility. These are a) Increase government revenues from improved water use charges collection, b) irrigation and associated yield increases in agriculture, c) economic development of local communities through CDD approaches, d) improved watershed management, and e) economic benefits related to GHG emission reductions either through avoiding emissions or by carbon sequestration.

Table 3.2: Non-exhaustive selection of economic benefits generated by the project

	Tangible	Intangible
Direct	<ul style="list-style-type: none"> • Improved irrigation and agricultural yields • Improved watershed services (e.g. for drinking water, hydropower generation, etc.) • Reduced of fuelwood use and reduction of smoke in kitchen • Increase in qualified jobs 	<ul style="list-style-type: none"> • Reduction in soil erosion • Reduction in deforestation • Afforestation / reforestation • Increase of trees in the agricultural landscape • Biodiversity conservation • Reduction in GHG emissions
Indirect	<ul style="list-style-type: none"> • Reduced respiratory and other indoor air pollution (IAP) related diseases • Reduced pressure on protected areas • Reduced malnutrition • Better access to credit • Increased resilience to external shocks • Reduction of malaria and other water borne diseases 	<ul style="list-style-type: none"> • Strengthened self-governance capacity of communities and community groups • Enhancing institutional mechanisms in support of decentralization and delivery of public services • Improved efficiency of forest product value chains • Lowering marketing costs • Improved schooling and education • Improved access to health services

15. As stated under Section 2.2 above, the selected benefits included in the quantitative economic analysis are those that can be directly and most immediately associated with the project implementation. While this especially applies for the economic development impacts, it is also a criterion for the environmental impact selected for this analysis. This approach ensures that the results of the economic analysis and quantitative simulation are robust and credible, and that they stay strictly within project boundaries.

3.2. Quantification of selected project benefits

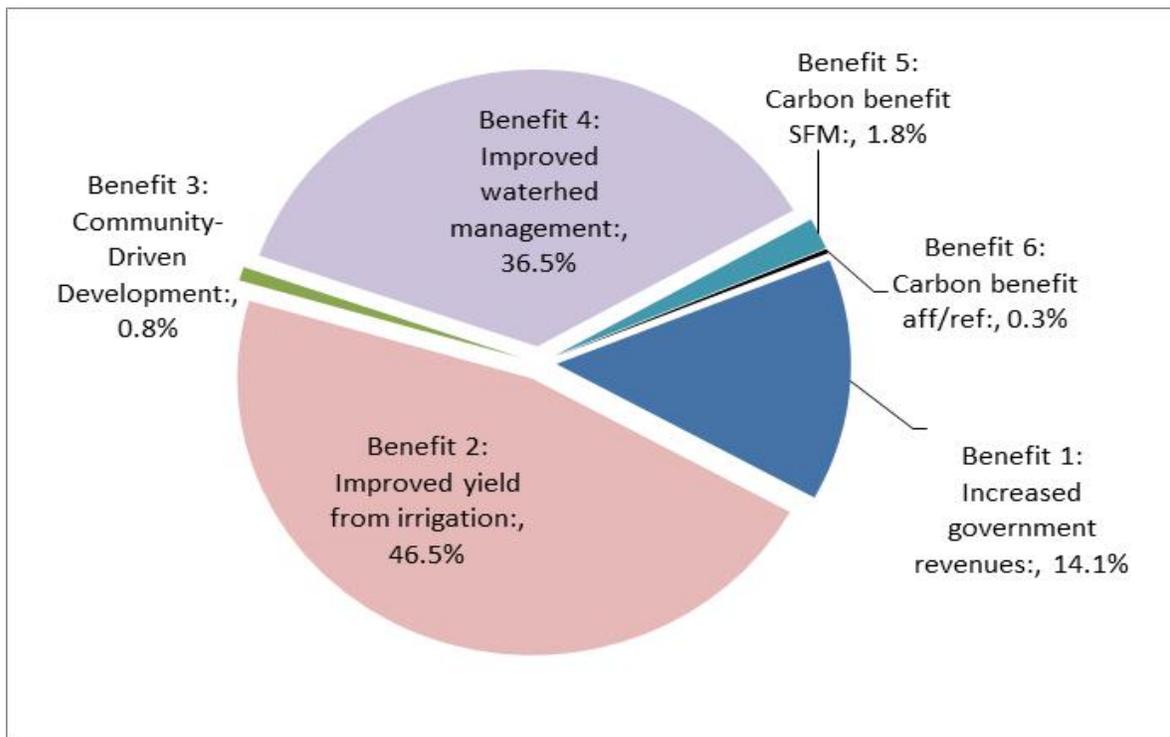
16. The results framework of the project included measuring improved collection of water use charges. By December 2012 the improved water charge collection had already amounted to a total of KSH 347.5 million or an increment of KSH 80.5 million compared to the baseline at the start of the project. It is assumed that without the project, water charge collection would remain at the same level as at the

beginning of the project, hence, the increase in water charge collection is assumed as the increment between the with and without project scenario.

17. One of the greatest impacts of the rehabilitated and newly constructed irrigation infrastructure is an increase in agricultural yields. Data collected in the project area indicates an average increase of about 20%. The incremental benefit of the project between the “with and without” situation is calculated by multiplying this incremental increase with revenues net of labor costs. A linear increase in agricultural area has been assumed over the 5 year project period of about 1900 ha/a, with a total of 9500 ha rehabilitated and newly constructed irrigation area.

18. The project supported a large number of CDD activities and only a few selected activities are considered for this quantitative economic analysis (see Section 7 below for a detailed description of a wide range of CDD micro-projects). In total, 25 different types of enterprises and 706 micro-enterprises were funded at the community level. The activities included brick making, bee keeping, dairy production (cows and goats), fish farming, food processing, greenhouses, efficient cookstove stove production and purchase, and many other activities. The quantification considered examples of livestock farming and the associated revenues from milk and yoghurt production and sale, fuel wood savings in schools (incl. one school where a biogas digester was constructed), one fish farming example, and tree nurseries. As only a few examples out of the full range of CDD activities are considered, the quantified economic benefits underestimate total economic benefits from this project component by a large amount.

Figure 3.1.: Distribution of quantified project benefits



19. With the emphasis of the project to improve watershed management in and around Kenya's water towers, watershed management benefits are of outmost importance. To approximate the monetary value, only the forest area brought under management plans was considered as reliable numbers exist that were reported in the project's results framework. Building on Pearce (2001)²⁵ who estimated watershed values of US\$10 per hectares, this value was also assumed for the determination of the economic value in this analysis. Given that no inflation adjustment was carried out and that only the forest area was considered – and not the entire watershed area – provides for a very conservative assessment of watershed benefits contributing to the robustness of the simulation results presented below.

20. As the project was also successful in supporting improvements in management of existing forests (i.e. by reducing deforestation and forest degradation, and stimulated reforestation and afforestation), the reduction of carbon emission is an important economic benefit generated by the project. A sequestration benefit of 0.5 tCO₂e/ha/a was assumed for improved natural forest management, which represents a very conservative assessment. Further, this technical assessment of avoided emissions was monetized assuming a carbon price of US\$1 / tCO₂, which is very low as some studies suggest social carbon prices exceeding US\$50 or even 70 tCO₂. For the sequestration for carbon through afforestation and reforestation, a sequestration assessment of 5 tCO₂e/ha was assumed, which is also considered conservative. The same carbon value of US\$1 / tCO₂e was applied.

21. Looking only at the quantified economic benefits generated by the project, improved agricultural yields takes up the largest share, which corresponds well with the overall project objective (see also Figure 3.1). Second is improved watershed benefits, followed by increased government revenues. Interestingly, carbon benefits only make up a minor share of the economic project benefits with a total of 2.1%. As the small share of economic benefits associated with CDD activities does not reflect the full range of benefits generated by the many micro-style activities, it puts an emphasis on the fact that in future projects there may be a need to better monitor economic impact achieved by these components.

4. Methodology chosen for the Economic Analysis

22. Cost-Benefit-Analysis was applied to conduct the economic efficiency assessment for this project. Sensitivity analysis is applied for the main simulation parameters notably discount rate, carbon price, and watershed benefit increments. For the discount rate, alternative rates of 2%, 5%, 10%, and 20% are applied. To test the

²⁵Pearce, D.W. 2001. "The Economic Value of Forest Ecosystems." *Ecosystem Health* 7 (4) (2001), pp. 284–296.

robustness of initial results, agricultural yields, watershed benefits, and carbon benefits are reduced by 50% in subsequent analysis. First, these reductions are executed separately to test the individual impact of these benefit components on overall results. In a last step, these reductions are combined. All sensitivity analyses are run for all four discount rates scenarios. The results of the quantitative results will be complemented with qualitative benefits to conclude overall project feasibility.

23. As required for economic analysis of projects, a With and Without project situation is used for estimating incremental benefits generated by the project²⁶. Taking account of the current situation, and the fact that the environmental as well as livelihood situation in the project areas is likely to continue to decline, even a slowing but continuation of an already negative trend represents a project benefit. For example, a slowing but continuation of deforestation and forest degradation trend is a benefit that can be quantified by the amount of incremental carbon that is not emitted into the atmosphere compared to the without project situation. Likewise, if household incomes can remain stable under a with project situation compared to a possible negative trend due to declining agricultural productivity, deforestation, climate change, and other possible impact factors, this also represents an incremental benefit achieved by the project. Net Present Value (NPV) and Benefit-Cost Ratio (B/C-Ratio) are used as criteria to assess the economic feasibility of the project. Economic Rates of return (ERR) are also stated, although they can already be approximated based on the sensitivity analysis applying varying discount rates.

24. A 15 year period is assumed to assess the economic feasibility of the project. While project costs are only assumed for the project implementation period according to the actual disbursements as reported in project documentation, benefits are assumed to be generated beyond the lifetime of the project. However, it is assumed that there are no further incremental changes of project generated benefits beyond the immediate project implementation period. This is a rather conservative assessment as it is likely that some of the momentum created by the project, for example as regards CDD and watershed management, will continue to increase after project implementation with increasing increments compared to a “without” project situation. To harmonize project benefits and costs through the calculation of a present value of costs and benefits, a discount rate needs to be determined as describe above.

5. Simulations and Results

25. It is important to consider the flows of project benefits and costs over the project and simulation period as it supports the interpretation of results. As depicted in Figure 3.2, projects costs have been fluctuating quite significantly during project implementation as there were times of low disbursement rates that picked up in

²⁶ For a more detailed discussion of the “with and without” principle in project analysis and evaluation, please refer to (a) Gittinger, J.P. (1984): Economic Analysis of Agricultural Projects, The World Bank pages 41-43 and (b) Belli, P. et al. (2001): Economic Analysis of Investment Operations, The World Bank Institute, The World Bank, pages 17-24.

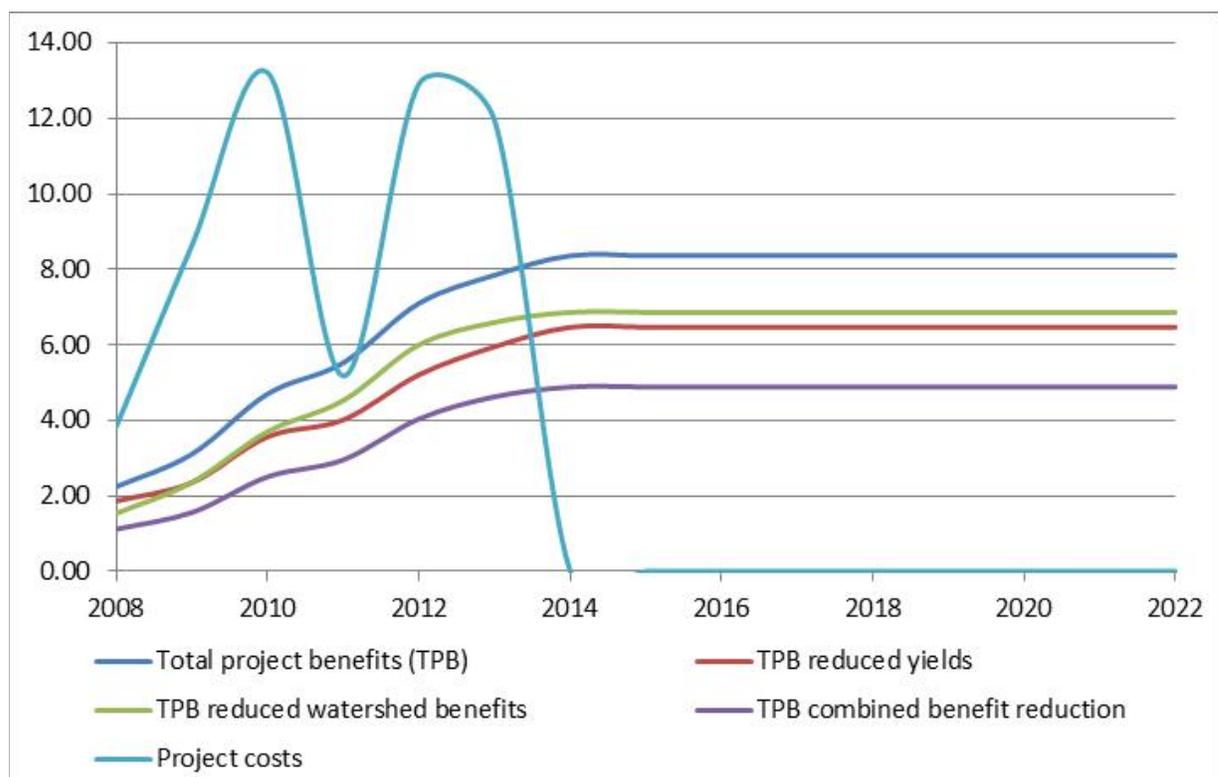
subsequent years. This fluctuation of project costs translates into a fluctuating net benefit stream, which will cause varying results under changing discount rates as future benefits and costs will be weighted differently in present values. Flows of project benefits, including all benefit reduction variations assumed in simulation are presented in Table 3.3.

Table 3.3: Flows of project benefits, including all benefit reduction variations assumed in simulation (in US\$ million)

	Year									
	2008	2009	2010	2011	2012	2013	2014	(...)	2022	
Total project benefits (TPB; baseline):	2.25	3.11	4.71	5.53	7.11	7.85	8.36	(...)	8.36	
TPB reduced agricultural yields:	1.87	2.36	3.57	4.02	5.21	5.96	6.47	(...)	6.47	
TPB reduced watershed:	1.54	2.36	3.71	4.53	6.01	6.60	6.86	(...)	6.86	
TPB reduced carbon:	2.21	3.07	4.65	5.47	7.04	7.77	8.28	(...)	8.28	
TPB all reductions combined:	1.12	1.56	2.51	2.96	4.04	4.63	4.89	(...)	4.89	

26. The simulations yield positive results for almost all of the scenarios for the baseline assumptions. Only the 20% discount rate simulation results in a negative NPV and below one B/C-Ratio. As the NPV is only slightly below zero, it already indicates an ERR close to 20%, which is mathematically confirmed at 16.7%. Simulation results are summarized in Table X.4, including all sensitivity scenarios.

Figure 3.2.: Flows of selected project benefits and project costs (in US\$ million)



27. Reducing some of benefits by 50% in the simulation underlines the economic robustness of the project. Results are positive for most situations, except at 20% discount rates and for agricultural yields, where only 2% and 5% discount rates yield positive results. Accordingly, combining all reductions simultaneously, i.e. reducing agricultural, watershed, and carbon benefits by 50% at the same time, yields negative results in all cases. As the ERR is calculated at 1.7% only very low discount rates would yield positive results. The ERR for the other 3 scenarios are 8.5%, 10.1%, and 16.3% respectively (see also Table 3.4).

Table 3.4: Summary of simulation results (NPV stated in US\$ million)

Discount Rate	Baseline		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	NPV	BCR								
2%	37.14	1.72	16.45	1.32	20.88	1.40	36.21	0.95	-0.73	0.55
5%	23.15	1.50	6.94	1.15	10.36	1.22	22.42	0.96	-6.58	0.55
10%	9.09	1.23	-2.17	0.94	0.13	1.00	8.57	0.93	-11.64	0.53
20%	-2.35	0.92	-8.53	0.70	-7.40	0.74	-2.64	0.91	-13.87	0.51
	ERR: 16.7%		ERR: 8.5%		ERR: 10.1%		ERR: 16.3%		ERR: 1.7%	

NPV = Net Present Value; BCR = Benefit-Cost-Ratio; ERR = Economic Rate of Return

Scenario 1: Reduced agricultural benefit (50%)

Scenario 2: Reduced watershed benefits (50%)

Scenario 3: Reduced carbon benefits (50%)

Scenario 4: All benefits reduced (50%)

28. Overall, it is judged that the results demonstrate the robustness of the analysis and confirm the positive economic impact generated by the project. As initial assessments for project benefits were already done in a conservative manner and the fact that a reduction of benefits by 50% reflects a rather unusual scenario – but still yields positive results in many situations – confirms the assumptions of positive economic results that would be achieved at project design stage. Given that many economic benefits are excluded, possible true economic returns are assumed to be well above 25% or even 30%, if not more.

29. To further test the robustness of the economic impacts of the project, simulations were run for a period reflecting only the duration of project duration. The results of this simulation are presented in Table 3.5. At the baseline scenario the simulation yields only negative results across all scenarios, i.e. at all discount rates. As a next step, it was tested what increases of individual benefits was required to achieve a break-even of project benefits and costs (NPV zero and B/C ratio of one) and whether these benefit increases are reasonable. This was done for three benefit categories: (a) Yield increases in agriculture, (b) watershed management benefits and (c) carbon benefits.

Table 3.5: NPVs analyzing necessary benefit increases to achieve break-even point at varying discount rates for project implementation period (in US\$ million)

Discount Rate	Agricultural yield		Watershed benefits		Carbon benefits	
	Multiplier		US\$/ha/a		US\$/tCO _{2e}	
	2.7	2.8	30	32	38	40
2%	0.20	1.59	-1.94	0.21	0.18	1.45
5%	-0.23	1.00	-1.88	0.05	-0.01	1.13
10%	-0.75	0.27	-1.77	-0.13	-0.23	0.74
20%	-1.32	-0.59	-1.52	-0.31	-0.44	0.27

30. Yield benefits from agriculture need to increase by a factor of 2.8 in order to achieve a break-even of the project costs and benefits. This can be achieved either as yield increases or price increases received for agricultural production – or any combination thereof, which is probably the most realistic scenario. Given current food price developments, it can be assumed that opportunity costs of agricultural production will increase in the future, not least also because of the rapidly growing urban populations demanding increasing amounts of staple foods.

31. Watershed benefits and carbon sequestration benefit increases needed to achieve break-even of project costs and benefits are also within reasonable ranges. For watershed benefits, values of US\$30/ha/annum yield positive results for all discount rates. Considering the 15-year simulation period yields ERR in excess of 80%. For carbon benefits, assuming a social value of carbon at US\$40 per tCO_{2e} results indicates a break-even of project benefits and costs. For the 15-year simulation period, carbon prices of US\$36 per tCO_{2e} yield an ERR in excess of 80%. Given that Pearce (2001) states watershed values ranging between US\$15 to US\$850 per hectare per year, the significant increase simulated here seems to be still justifiable, especially if benefits beyond the immediate project boundaries are taken account of.

32. For carbon benefits, and despite the currently low carbon market prices, it has to be acknowledged that estimations applied here should reflect the social cost of carbon – that is how much economic damage each extra ton of carbon dioxide delivers. There are a number of ways which economists try and arrive at their estimates, using different modeling techniques²⁷. In the context of this debate, a US\$5 per ton figure is very low. For example, the United States Government puts the figure at around US\$32, while other studies give a range between US\$15 and US\$74. Pearce (2001) even states monetary values of climate benefits of tropical forests ranging between US\$360 and US\$2200 per hectare per year.

6. Conclusion

33. This ex-post economic efficiency analysis conducted for the Kenya Natural Resources Management project confirms the positive economic impact the project was expected to generate. The results of the quantitative simulations are also robust

²⁷ See, for example, the Yale Forum on Climate Change

across a range of sensitivity analyses assuming significant changes in discount rates and key simulation parameters, notably agricultural yield, watershed benefits, and carbon benefits. Throughout the analysis, it was emphasized that benefit assumptions were always done conservatively using lower-bound values, especially as regards non-market benefits such as watershed and carbon benefits.

34. The quantitative analysis was also strictly limited to values that can be clearly attributed to the project. In addition, for example, for economic benefits arising from the project investments in CDD activities, only a few of those activities were included where reliable data was available. Further, it was assumed that benefits would not further change beyond the project implementation period, even though it is likely that positive effects will continue to generate positive incremental changes compared to the without project situation. While this approach systematically undervalues project impacts, it provides a high degree of robustness. If additional and downstream project benefits had been considered the simulations would have yielded even stronger results.

35. Analyzing the project impacts in the broader context of economic development and environmental change that took place in Kenya during project implementation implies that the project piloted and catalyzed important development momentum for the sustainable management of natural resources. With increasing pressure on natural resources and growing ecosystem stress through climate change, the project investments and associated achievements are highly relevant in today's context. With growing urban populations and increasing demand for water, safeguarding Kenya's water towers through sustainable management of watersheds and forest resources is a paramount ingredient to the country's development ambitions. Against increasing global food prices and increasing domestic demand for food, rehabilitating and extending irrigation infrastructure is a vital measure to enhance food security and support economic development, especially in rural areas.

36. The provision of additional livelihood opportunities in rural areas through CDD approaches as facilitated by the project is likely to yield important secondary effects that were not explicitly considered in the analysis. Improved incomes often allow improved access to education and health services. The project also reported positive impacts on malaria control through improved irrigation infrastructure that eliminates breeding grounds of mosquitos. Higher life expectancy, improved income opportunities for future generations, increased capacities to manage farms and contribute to economic development are only few of a wide range of possible secondary and tertiary economic effects generated by the project. One important aspect of the project, especially the CDD investments, relate to the self-organization of rural communities and interest groups that are expected to play increasing roles for facilitating locally-controlled investments and economic development at large.

37. Probably one of the most important but so far unstated economic impacts of the project relate to the capacity building of government institutions at central and decentralized levels. Enhanced capacities of government institutions will be improving public service delivery with numerous benefits and positive economic impacts.

Especially with the continuing challenges of natural resources management – not least due to climate change – the aspect of enhanced functioning of public institutions cannot be underestimated, particularly in a “with” and “without” project scenario. Enhanced functioning of government institutions will also facilitate the implementation of future projects and investments that will be built on and continue the achievements of this project. Similar considerations apply to knowledge generation and management achieved by the project.

38. This ex-post economic assessment confirms the anticipated economic impacts envisaged during project design. The ex-ante economic evaluation of the different NRM Project interventions, such as sustainable land management, reforestation, irrigation, and CDD micro-projects, indicated that most activities are likely to be profitable from the beneficiary and project perspective. In many cases, the off-site effects add significantly to economic viability from the society’s perspective. The results of the analysis have some important implications for the design and implementation of the NRM Project

39. In summary, based on this economic evaluation, it is concluded that the project as resulted in significant positive development impacts. The consideration of only a few of those benefits into the quantitative analysis sufficed to yield positive economic results. The achieved economic benefits comply largely with what was anticipated during the design stage of the project. This supports the design and implementation of the project, in particular the selection of activities in which the project invested. It demonstrates that investments in sustainable natural resource management contribute significantly to the economic development ambitious of countries such as Kenya as they generate and safeguard important direct environmental services and instigate economic development in rural areas where income opportunities remain sparse.

7. Appendix: Assessment of CDD Livelihood subprojects

40. Livelihood schemes involved an investment of approximately US\$13 million under Components 2 (Implemented by KFS) and 3 (Implemented by WRMA). These schemes have managed to realize direct and tangible impacts for communities in forests and sensitive catchments, reaching over 130,000 direct and indirect beneficiaries which is broken down as follows: Component 2 included 1,700 indigenous households in forest zones which resulted in an estimated 10,000 indirect beneficiaries. Component 3 reached a total of nearly 120,000 members of CBOs who were mobilized and trained in subproject management. Of these, 3332 sub-project proposals were received from 713 CBOs, and 706 micro-projects were financed by NRMP. These micro-projects supported livelihoods for 4,145 direct beneficiaries, and nearly 25,000 when including household members. While it is too early to assess impacts in terms of improvements in the people’s livelihoods and income, indications are that if the current momentum and enthusiasm among beneficiaries are sustained, their income will continue to improve among beneficiaries and surrounding households that are following and replicating the successful examples introduced and validated by the CDD schemes.

41. **Some of the positive impacts** include: (i) improved family income through the sale of products such as milk, greenhouse production of vegetables, eggs, poultry, etc.; (ii) other community groups are now looking forward to realizing benefits from their activities: tea, coffee, improved breeds of local cows and sheep, orchards and other high value trees among others; (iii) training on governance, procurement and technical skills related to specific micro-project activities, and other activities improving their abilities to organize themselves as groups to better manage their interests and future. Groups are now more involved and participated fully in the NRMP management and safeguard activities. In addition, improved relationships between the WRMA, NIB, KFS and the different CBOs is leading to better conservation of the resource base, and to the awareness that with dialogue, consultations, communication and openness, both the line agencies and the CBOs can be better prepared to provide win-win situations benefiting all stakeholders.

Some typical livestock schemes

42. From the 706 CDD schemes financed 340 (48%) aimed developing livestock production. Services provided included support for production (extension, marketing, value addition and agribusiness) and veterinary services (disease and vector control, artificial insemination, etc.). Production support contributed in meeting NRM objectives and those on livelihoods enhancement including: food production, income generation, social integration, source of raw materials, and mobilization of CBOs, technical service provision, and capacity building activities. The livestock schemes included dairy cows and goats, poultry farming, bee farming, pig farming, and fodder production.

43. *The Mwiteithia Dairy Cow Self Help Group (SHG)* located in Kangaitha, Kirinyaga County invested in dairy cows for producing milk. Originally 68 members (38 women and 30 men) applied for funding, but as the scheme succeeded members increased to 238 (58 women and 180 men, of which 42% are youth) expanding the activity. The initial investment was Ksh 983,000 for buying five improved breed dairy cows and for construction of a shelter and hay store. All cows calved, but one died at birth, and the 2 bulls and 2 heifers were sold to group members at the age of 3 months. About 55 liters of milk are produced daily of which 35 are sold to the local processing plant and 20 liters used for making yogurt which is sold locally. Between July 2012 and April 2013, milk provided Ksh 324,788 and yoghurt Ksh.55,285. Costs included Ksh 349,657 for feed, labor Ksh 90,200, and equipment (buckets, water tank, deep freezers, silage, chaff cutter).



Zero grazing unit



Freezer for yogurt



Prepared Cow feed

44. The group members received training sessions from the Livestock Development officer covering husbandry practices and yoghurt production. They are now also entering into individual dairy farming and using the cow manure for improved cropping. They no longer need to rely on forest products and resources for their survival. The group realized a net profit of Ksh 30,216 and contributed with Ksh 695,000 to procure additional dairy cows and constructing new cow sheds and hay stores. They increased their revolving fund from Ksh 100,000 to Ksh 220,000 giving members the opportunity to borrow for their individual small farming or other enterprise activities.

45. ***The Kacebu Mwangaza SHG (Poultry-Layers)*** located in Nyeri County started in 2004 with 41 members (28 Males and 13 Females). They raised funds through the merry-go-round saving concept and started table banking for members as the first major activity. Later they went to poultry rearing for income generation. They invested Ksh 570,000 in constructing a poultry shed and bought 500 layers. So far they sold over 700 trays of eggs generating Ksh 200,000. Poultry manure is used in their farms to improve vegetable crops. They also got knowledge on environment management, and are sensitizing other groups. They learnt many other useful lessons including the importance of locating the shared project in a neutral ground; the importance of economies of scale and also of record keeping for proper managing the business. They are using some of the generated profits to expand their activity. The major challenges felt were the lack of knowledge on leadership, management and group dynamics; and lack of funds to expand their project.



Poultry house with water tank

CBO Layers stock

Eggs being prepared for the market

46. ***The Nyakiambi Women SHG (Beekeeping)*** is located in Kinyaga, Kirinyaga County and started in 1994 with 47 women aiming to assist each other through merry go round. The group was formed for working together to mitigate poverty by improving the roof of their houses, generating earnings for paying school fees for their children, buying beddings, utensils, chicken and goats. Later they started an income generating activity and evolve to beekeeping. They invested Ksh 730,760 for purchasing 60 beehives, and harvesting and processing equipment including a honey extractor machine. They started harvesting, packing and selling honey jars in different sizes selling at Ksh 700/lit. So far they have done four harvests totaling 105 Kgs of honey increasing their income by Ksh 73,500. The Kinyaga community, as in many other places, proved that women are good managers of modern environmental friendly beekeeping. Due to good results membership increased to 126 (3 males and 123 females) owning 14 beehives. The group is active, cohesive and visional, and is having other plans (e.g. buying of plastic tanks and maize

farming for members). The NRM team provided support by training the management committee on financial, governance, monitoring, book keeping and procurement aspects.



47. Environment has been improved from fencing the apiary, tree planting and other measures aiming to improve pollination. Members are planting sunflower in their farms for bees to collect nectar, and as a byproduct they produce cooking oil and feed for their chicken which results in more eggs, manure and money from sale of more birds. Families have improved their diet and also have better access to education. The SHG hives have consolidated the group improving their income and becoming a model for other members of the community who are gaining interest in bee keeping and doing business themselves.

48. **Ragati Riverline SHG Artificial Insemination (AI)** is located in Ragati, Nyeri County and was founded in 2004. Before 2012, the CBO was collecting milk from members and transporting it to a local enterprise who forwarded it to the new K.C.C factory at Kiganjo. At the time membership was 150 and milk collected 10,000 liters. Transport was done by bicycle and members had little knowledge in dairy cow rearing and most of them could not afford buying feeds on a cash basis. Farmers sold their milk to local brokers and hotels and at times the middlemen would not pay them at all. The first major group activity was to mobilize neighbors for milk collection and 30 members came together taking milk to Kiganjo KCC. NRMP funding enabled them to buy an AI kit complete with motorbike. About 200 cows are already served and new services are now more accessible to members: 7 milk shades and an office were added, improved semen and animal feed is available on credit from the group stores; 20,000 liters of milk are moved every month, members have enough milk for domestic use and for selling, members are trained on animal husbandly, and employment opportunities were created.

49. **Kimorori Adult Education SHG (Dairy Goats)** is located in Makuyu, Murang'a County an area with scarcity of land where members cannot engage in agricultural activities as source of their livelihood. The group included 20 adult students (17 women, 3 men) who continue to function as an environmentally fervent group where all members are committed and attend class every afternoon. They invested Ksh.244, 000 and received 10 training sessions covering lessons on goats' husbandry practices. Other community members visit the project for learning and some are buying goat kids and bringing their goats to be served by the group buck. Members are changing their focus into dairy goats' farming and using the manure in growing crops for self-consumption or for marketing.



Housing unit

Goat offspring

50. The SHG constructed a goat house and procured a breeding stock of 5 does and 1 buck. To-date 19 kids have been sired, 14 does were given out to 14 members and 5 small bucks were sold. Milk is shared among members. Does produce an average of 1 liter per day and distributed among members or sold locally. They also sold one lorry of manure. The improved buck generates additional income by charging for service Ksh.50 to members and Ksh.100 to non-members. The activity is being expanded at the individual member level as they receive the born kids. So far they have 2 mature does that were given to 2 members who in return give a kid back to the group. Total profit from milk, sale of bucks and manure is Ksh 31,000. The leaders are respected by the community, relationships with members are stronger as they are trained and work together to feed and manage the goats.

Some typical agricultural production schemes

51. A total of 61 CBOs were funded for agricultural production activities (9% of all projects funded) being supported by the MoA. They included: vegetable production in greenhouse, seed bulking (Irish potatoes and sweet potatoes), energy saving stoves and value addition of food crops. MoA contributed to NRMP objectives improving livelihoods of the SHG in several ways including the promotion of soil and water conservation, river bank protection, farm layout and planning, agro forestry, enforcement of the 10% tree cover in farms, enhancing food production and income generation, production of raw materials for local industries, providing technical services, sensitizing and mobilizing eligible groups, offering technical support to CBOs and the NRM Secretariat, linking CBOs with relevant stakeholders and capacity building activities.

52. *The Kaewa Secondary Day School (Green House-Tomatoes)* is located in Yatta Sub-County, Machakos County and invested Ksh 483,100 on a greenhouse to grow tomatoes. It is an area where water is scarce and growing tomatoes in greenhouse is a new activity for the community. The crop did so well that one fruit could weigh up to half a kg and many were thinking magic was being applied to get such products. The School project committee has been trained in greenhouse management and crop husbandry practices by the service provider. About Ksh 28,000 of the profits has been saved by the School and used to sponsor 5 orphan students by paying school fees. The scheme gave hope to vulnerable groups and has become a resource center, and many community members are willing to start similar projects in their homesteads. Several schools have also visited the scheme to learn more about greenhouse farming in an arid environment.



Functional Green house

CBO chair monitoring the maturing tomato crop

Mature and ripe tomatoes ready for the market

53. **The Gakoe Ushindi SHG Processing Juices** members from Gakoe, Kiambu County grow passion fruits and pineapples. They invested Ksh 436,700 for processing and packaging passion and pineapple juices. The SHG processing enterprise was certified by the Ministry of Health (MoH) and the Kenya Bureau of Standards (KBS), and has generated many benefits to members and their community including: income increases and economic development by the sale of juices, generating employment opportunities, increasing acreage of passion and pineapple plantations, and offering internships opportunities to students pursuing agro-based studies. The plans are to advance with the production of about 10 types of juices, procure necessary export license, install cold storage facilities, and purchase land to relocate the factory and develop it.



CBO member handling packaging materials

Bottled Juice at the store ready for the market

CBO brand name "HALISI"

Some improved energy saving stove schemes

54. In total 114 institutions (primary and secondary schools) were funded for improved energy saving stoves using 16% of all projects funded. The schemes were promoted and technically supported by the MoA and community experts trained by GIZ. The improved energy saving stoves made a huge contribution for meeting NRMP objectives and improving the livelihoods of the schools communities in several ways. Three schemes are described below as group representative case studies.

55. **The Kagio Secondary School** is located in Kagio, Kirinyaga County and has a population of about 400 students. The improved energy efficient stoves had a cost of Ksh 246,000, the school contributing with 10 percent. In addition, the school took a loan for Ksh.1.6 million to construct a spacious new kitchen where the improved stoves were installed, one with 250 liter and the other with 200 liter capacity. The kitchen staff and

other school members received six training sessions from the MoA Home Economics Department on the importance of proper O&M of the stoves from start-up. Parents, neighboring other schools and community members have been visiting the scheme for learning about the new technology for saving energy and related costs.

56. Before the scheme they consumed 16 Lorries (112 tons) of wood fuel per term (or 48 Lorries totaling 336 tons per year. With the new stoves they are using 4 Lorries (28 tons) per term or 12 Lorries (84 tons) per year, a reduction of 75% in wood burned which is a huge environmental benefit. Ugali preparation used to take 3 hours to cook but now it takes only one hour, a reduction of 67%. As wood fuel costs Ksh 14,000 per lorry of 7 tons (Ksh 224,000 per term and Ksh 672,000 per year) and now they are spending only Ksh 56,000 per term (about Ksh 168,000 per year), it represents a saving of Ksh 504,000 per year which is used to repay the loan taken to construct the new kitchen. In three years they will have paid the loan and will start building a school dining hall with the scheme savings. The school principle explained that “this was a God sent opportunity that I could not loose. I grabbed it when it came. Now I don’t need to go to ask parents for money”. The old open fire burner stoves were a health hazard to the kitchen staff and students. The environment is now attractive and the health of the staff has improved.



Old school kitchen



Modern school kitchen build by a loan being paid with savings from the wood fuel budget



Energy efficient stoves installed and in use at the new kitchen

57. ***The Giachuki and Ndindiruku Secondary Schools*** are located in Kigoro Murang’a and in Tebere Kirinyaga County respectively. The first one invested Ksh 465,600 and the second one Ksh 873,000 for installing energy efficient stoves and an oven for making bread. The schools have been consuming thousands of tons of wood fuel per year for cooking and heating water for showering in their cold areas. Stoves allowed reducing consumption of wood fuel drastically: Gachukia School from 90 tons to 30 tons per year, a reduction of 67%; while Ndindiruku School from 30 tons to 7.5 tons, 75% less. Thousands of trees are now saved every year, reducing drastically the amount of carbon emitted to the atmosphere. The schools also established environmental clubs to mobilize their communities to plant trees and care for the environment. The Giachukia Secondary School photos below show the improved stoves and the school community planting trees.



58. Giachuki School reduced its consumption costs on wood from Ksh 540,000 to Ksh 60,000 per year saving 88%, while Ndindiruku School reduction was from Ksh 60,000 to Ksh 15,000. The former is using their savings to construct a new dining hall, equip the kitchen and establish a tree nursery for supplying seedlings to plant in the school and surroundings. The latter use their savings to pay a baker to supplement the school feeding program where students are provided with a balanced diet and started a school greening program. They bought and planted 700 seedlings in the school and started a bakery business unit that is supplying cakes and bread at lower prices to the students, teachers and surroundings. The school consumes about 7,560 per year and the cost of bread is Ksh 45 meaning that the school spends Ksh 340,200 per year in bread. They are making saving being used for paying two cooks at Ksh 13,500 per month. The baker keeps Ksh 7,000 as salary from the extra bread she makes for sale.

Biogas linked toilets (EcoSan) in schools schemes

59. Global warming and environmental degradation has become a great threat to mankind. In African wood is the major source of energy for millions of people in rural areas, in households, schools and industry. Trees are the best means of mitigating carbon emissions reducing global warming and inducing rain. Cutting trees for wood fuel is therefore a practice that needs to be curbed by developing alternative and sustainable energy solutions. There are about 4,000 schools, 100 prisons and over 100 colleges' dependent of wood fuel in Kenya consuming huge volumes of wood for fuel. Also, most wastewater and droppings from schools is discharged untreated into the surroundings threatening the health of people. The CDD component funded 23 schemes (3.25% of all projects funded) to schools for producing biogas from human and animal wastes. Targeted schools had a minimum of 400 boarding students without adequate sanitation. People are faced not only to a polluted environment, but also to a high risk of infection. About 5000 children die daily from diarrhea which is caused by poor sanitation (UN-Water). The Biogas/Bio-latrines schemes - supported by experts in Kenya (Skylink and Ecosan) - aimed to meet economic, environmental, social, educational and health needs.

60. ***The Thumaita Girls Secondary School*** has 400 students located in Gichugu, Kirinyaga County. The support for the school included: bio-digester, baffle reactors, gravel filter and 20 toilets. Money spend on wood for fuel is now saved altogether as the biogas system substituted wood as source of energy. One student is estimated to consume 0.352 tons wood fuel per year, so the Thumaita's 400 girls consumed about 140.8 tons of wood per year. Each ton of wood for fuel costs about Ksh 2,961, so school annual savings are about Ksh 416,909. Slurry from digester is used as organic fertilizer in the

school farm saving an additional Ksh 40,000 per year from avoided cost of fertilizer. There will no longer be necessary to dig new pit latrines every time the old ones fill up, or to spend money to empty the latrines. They used Ksh 500,000 to dig new pit latrines every 3 to 5 years and spent Ksh 200,000 every time they exhaust filled up pit latrines.



61. With the system Thumaita School saves approximately 140.8 tons of wood fuel per year. As one kg of wood is equivalent to 1.7 kg of carbon the scheme reduces about 240 tons of Carbon emissions. On average one person produces about 0.75 kg of waste per day. As one kg of human waste produces 40 liters of biogas, the 400 girls from Thumaita produce 300kgs of waste per day resulting in 12,000 liters of biogas per day. One liter of biogas is equivalent to 0.0134kgs of carbon, so 12,000 liters of biogas produce 160.8 kgs of carbon a day. In one year (290 school days) this means 46.6 tons of carbon. The bio-latrines in the school therefore, mitigate 46.6 tons of carbon per year through burning the biogas for cooking. 11 tons of carbon is equivalent to reforesting one acre of forest per year. Hence, the school avoids cutting, or is equivalent to foresting 4.2 acres per year. The slurry from the bio-digester being rich in nutrients is used in the schools' farms as organic fertilizer reducing the use of chemical fertilizers.

62. The health condition in the school is greatly improved through use of proper sewage disposal and treatment mechanism with the biogas system, contributing towards better performance by the school academically. It also improves health of the community and reduces the money required to cover medical treatments to students affected. It also reduces the likelihood of chronic diseases that are associated with the indoor combustion of biomass-based fuels, such as respiratory infections, ailments of the lungs; bronchitis, etc. Smoke has been named "the Killer in the house" by the World Health Organization.

63. In all funded schools, the administration has appointed staff members and 2 local artisans who received some training by the contractors on site, especially on O&M of the system. At completion before commissioning, the contractor conducts full training targeting the project implementation committee, parents, school staff and community members. Other schools and community members have been visiting the schools to

assess progress and learn how the system operates becoming a training center of interest, producing biogas from human waste and many are seeking funding for this technology.

Fish farming schemes

64. The project funded 29 fish ponds, 4% of all schemes with the support from the Fisheries Department to meet the NRMP objectives and improve livelihood of the people through construction of adequate fish ponds, community sensitization on environmental issues, aqua culture production, following fisheries laws and regulations, marketing of fish productions and value addition, licensing of fish traders, increase fingerlings production, feed formulations, training of farmers on fish farming and management.

65. ***The Ebenezer Trout Group (Fish and Fingerlings Production)*** was formed in 2008 with 26 farmers members (17 women, 9 men) living along the edge of Kabaru forest in Nyeri County along Sagana River. The SHG was licensed by KFS to operate in the forest and given a water permit by WRMA to use the water from the river integrating fish farming and forest conservation and management. Before the SHG project, the group was engaged with subsistence irrigated cropping based on the unreliable water flow increasingly affected by climate change. As they realized the importance of trout fish as a source of income and Omega 3, and that the quality of water was good, with technical support and training they are now benefiting through: increased food security, office installations and increased income generated from the sale of fingerlings and trout fish.



New fish pond after NRM funding



Trout fingerlings



Mature trout fish ready for sell



Slaughtered trout ready to sell

66. They have sold fingerlings worth Ksh 130,000, developed good relations and partnered with other SHG and organizations to gain knowledge, encourage communities to plant indigenous trees and create job opportunities to members. The scheme is used as a training center by Jomo Kenyatta University of Agriculture and Technology, for taking a degree in Fisheries and in Forestry and is visited by tourists who come to Mountain Lodge, Serena Hotel which is 400 meters away. In April 2013, the group lost 13,000 fingerlings and 800 250-gms brooders due to upstream river poisoning by a tree from the forest that was cut down by encroachers. They are still struggling to recover from losses and seeking for further support. A peer trout fish farming CBO donated 500 trout fingerlings imported from Japan being now reared as breeding stock.

67. **The Mathina Cross Section SHG (Tilapia and Cat Fish)** is located in Kiganjo, Nyeri County was supported with two units of fish ponds. They invested Ksh 300,000, and introduced 1000 fingerlings of Tilapia and 10 cat fish to control Tilapia population. In March, 2013 (first harvest) they harvest 235Kgs sold at Ksh 70,500. A part of revenues was shared among members and the largest portion was kept to continue with the fish scheme. They have not faced any major challenges and is performing very well.



Tree Nursery schemes

68. In total 87 trees and bamboo nurseries were established representing 12% of all projects funded. A total of 2.8 million seedlings have been produced to-date of which part has been sold and other distributed to various communities in the upper Tana catchment area. KFS was involved in capacity building, technical services provision; training CBO members on tree nursery establishment, management and marketing. Tree nursery SHGs were trained on the importance of environmental conservation, use of reliable source of seeds/seedlings; use of small well maintained and covered trucks and other matters. They are also required to ensure minimal soil erosion at the seedbed and during transplanting. Major challenges faced by the CBOs are death of seedlings, poor germination rates, lack of water during dry periods and lack of ready market when seedlings are set for planting.

69. **The Greenland Agro-forestry Tree Nursery SHG** is a CBO formed in 2004 and registered in 2006 with the Ministry of Gender, Children and Social Development located within Ndiko sub-location, Gakoe location in Gatundu North district-Kiambu County. It has 24 members (9 women and 15 men, of which 7 youths) managed by a well-structured bylaws. Operations are headed by the Executive, and finance, monitoring and procuring sub-committees. They specialized in propagation of bamboo and other species. They received Ksh 920,000 from NRMP (1st and 3rd call) for constructing two greenhouses.

70. They have raised 28,000 Bamboo seedlings and 18,000 of other species and benefited on entrepreneurship and leadership management skills. They sold 4000 Bamboo seedlings and 10,500 of other seedlings for Ksh 745,000 and distributed 1,000 Bamboo and 500 other seedlings to members and the community for planting in their farms and public places like schools, Kieni forest station, and river banks. The scheme generates many benefits to members and their community including additional income, employment opportunities, afforestation and internships to students on environmental studies.



71. Dividends distributed among members at the end of last year amounted to Ksh 240,000. The scheme performance is satisfactory. Some of the challenges experienced include: formation of CFA due to lack of clear organizational structure, communication gap between the project secretariat and officers on the ground. The tree nursery scheme was categorized under category ‘A’ attracting 30% CBO contribution which was a problem for many potential groups involved in tree seedling production and conservation.

72. **The Ruguru Tree Cover Tree Nursery** is a similar CBO case located in Sagana, Nyeri County formed in 2003 and registered in 2006. It comprises 250 members (100 women and 150 men) of which 105 are active. Operations are managed by a similar structure as the previous case. They received Ksh 1,626,700 during the 1st and 4th calls and constructed two green houses. So far they produced 8,500 bamboo and 430,000 other seedlings. They also benefited on entrepreneurship and leadership management skills. They sold 1,000 bamboo seedlings generating Ksh 400,000 and distributed 500 bamboo seedlings to members and the community. A 7,000 bamboo seedlings order is growing and is expected to generate Ksh 2.8M within the next two months. They have sold 80,000 indigenous and exotic seedlings generating Ksh 800,000 and distributed 100,000 seedlings to CFAs and WRUAs to plant at Hombe forest station and Sagana river banks. The scheme provided many benefits including: income from sale of seedlings, job opportunities and reforestation. The Ruguru Tree Cover and Hombe CFA members are participating with KFS and KEFRI to train other CBOs on bamboo propagation in Mount Kenya and parts of Rift Valley. The project performance is highly satisfactory.

Conclusions of the Assessment of CDD supported schemes

73. The introduction of livelihood activities is providing new opportunities to the rural communities leading to reduced pressure on existing water and forest resources. Various CBOs have been offered training on various aspects (e.g. Environmental Conservation, Conflict Management, Governance, Leadership and Management). The communities are expected to continue to improve their livelihoods as a result of the new

activities and their increased empowerment on resources sustainability and in influencing their own future.

74. The livelihood schemes have enhanced integrated water and forest resource management in the project areas and have contributed immensely towards the conservation and protection of the Upper Tana water catchment. There are minimal and manageable negative environmental and social impacts associated with the project activities which need to continue to be addressed as indicated in the ESMP.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Leonard John Abrams	Consultant	AFTN2	
Sandra Jo Bulls	Program Assistant	AFTN1	
Enos E. Esikuri	Senior Environmental Specialist	LCSSEN	
Serigne Omar Fye	Consultant	CICAF	
Wambui G. Gichuri	Sector Manager	LCSWS	
Nyambura Githagui	Lead Social Development Specialist	AFTCS	
Tracy Hart	Senior Environmental Specialist	MNSEN	
Richard John Kaguamba	Consultant	CPFCF	
Lucie Mucchekehu	Program Assistant	AFCE2	
Christian Albert Peter	Lead Environmental Specialist	LCSSEN	
Dahir Elmi Warsame	Senior Procurement Specialist	AFTPE	
Moses Sabuni Wasike	Senior Financial Management Specialist	OPSOR	
Wendy A. Wiltshire	Consultant	AFTA1	
IJsbrand Harko de Jong	Lead Water Resource Management	ECSAR	
Christine E. Cornelius		CICIN	Project Task Team Leader
Supervision/ICR			
Henry Amena Amuguni	Senior Financial Management Specialist	AFTME	
Christine E. Cornelius	Consultant	CICIN	
Efrem Fitwi	Procurement Specialist	AFTPE	
Serigne Omar Fye	Consultant	CICAF	
Helene Gichenje	Consultant	AFTN1	
Thaisa Tiglao Katz	Communications Associate	EXTCC	
Juma Kayonko	Consultant	AFTEE	
Jane A. N. Kibbassa	Senior Environmental Specialist	AFTN3	Environmental safeguards
Naomi Ntatai Kipuri	Consultant	AFTCS	
Yuko Kurauchi	Consultant	AFTN1	
Markus Moeller	Consultant	AFTA1	
Edwin Nyamasege Moguche	E T Consultant	AFTME	
Lucie Mucchekehu	Program Assistant	AFCE2	
Julius Githinji Muchemi	Consultant	CPFCF	
Junko Nishikawa	Junior Professional Officer	GFDRR	
Monica Gathoni Okwirry	Program Assistant	AFCE2	
Tom Mboya Owiyo	Consultant	AFCE2	
Christian Albert Peter	Lead Environmental Specialist	LCSSEN	Project Task Team Leader, 2008-2012
Satoru Ueda	Lead Water Resources Specialist	TWIWA	Irrigation
Pierrick Fraval	Senior Water Resources Specialist	AFTA2	Irrigation
Jorge E. Uquillas Rodas	Consultant	OPCQC	
Dahir Elmi Warsame	Senior Procurement Specialist	AFTPE	
Stephen Danyo	Senior NRM Specialist	AFTN1	Project Task Team Leader, July 2012 to

			closing, and ICR Task Team Leader
Gibwa Kajubi	Sr. Social Development Specialist	AFTCS	Social safeguards
Rafik Hirji	Sr. Water Resource Specialist	AFTN2	Water resources
Neeta Hooda	Sr. Carbon Finance Specialist	CPFCF	REDD
Margaret Ombai	Consultant Forest/VMGs	AFTCS	Forest communities
Suzanne Kiamba	Consultant Forest/VMGs	AFTCS	Forest communities
Shamis Musingo	Program Assistant	AFCE2	
Hope Nachemeza	Program Assistant	AFCE2	
Mary Jackson	Program Assistant, STC	AFTN2	
Juan Morelli	Consultant ICR Preparation	AFTN2	ICR preparation
Yesuf Abdella	FAO-TCIA Irrigation Engineer		Irrigation
Ida Christensen	FAO-TCIA Rural Sociologist		Social development
Harry Denecke	FAO-TCIA Water Resource Mgmt.		Irrigation

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY06	44	210.6
FY07	85	390.2
Sub-Total:	129	600.8
Supervision/ICR		
FY07	19	88.7
FY08	38	145.3
FY09	26	121.4
FY10	23	130.4
FY11	49	188.3
FY12	37	150.1
FY13	19	170.0
FY14	4	18.4
Sub-Total:	214	994.2
Grand Total	343	1595.0

Annex 5. Summary of Borrower's Completion Report and Comments on Draft ICR

5.1 Summary of Borrower's Completion Report

A. Project Development Objectives and Design

A.1 Introduction

1. As at 2005, Kenya was going through an impressive economic transition period, based on the development and implementation of Kenya's 2003 Investment Program for the Economic Recovery Strategy for Wealth and Employment Creation (IP-ERS). However, the natural resource base that serves as the foundation for much of the country's economic activity was vulnerable to natural shocks, mismanagement, and depletion. In response, the Government of Kenya (GoK) promulgated the Water Act (2002) that provided for the establishment of a new institutional framework for the management and development of water resources, mainly through the newly established national Water Resources Management Authority (WRMA). To better manage forest resources, a new Forest Policy was prepared and a new Forest Act, approved by parliament in 2005. The Forest Act constituted a new Kenya Forest Service (KFS) and embraced participatory forest management through Community Forest Associations (CFAs).

2. The Natural Resource Management Project (NRMP) aimed to assist the GoK in designing the needed legislative and institutional framework for implementing policy with regard to forests and water resources. This would be done through strengthening of the information base, enhancing the legal and regulatory framework, financing investments in capital works, and, most importantly, engaging communities as indispensable partners in co-management of water and forest resources. The project, with its focus on enhancing the capacity of Kenyans to manage the natural resource base and resources available to poor and vulnerable communities, was consistent with the CAS Progress Report.

A.2 Original Project Development Objective (PDO) and Key Indicators

3. The objective of the project was "to enhance the institutional capacity to manage water and forest resources, reduce the incidence and severity of water shocks in river catchments, and improve the livelihoods of communities participating in the co-management of water and forests".

A.3 Revised PDO and Key Indicators and Reasons/Justification

4. The PDO was formally revised and simplified in June 2011 “to improve the management of water and forest resources in selected districts²⁸”. The revision was aimed at ensuring project outcomes were within the control of, and could be delivered by, the Implementing Agencies (IAs).

5. The revision made the new PDO more attainable within the project lifetime and simplified the initial PDO which was considered overly ambitious. The change in PDO also clarified the difference between the PDO and Results Framework as stated in the Project Appraisal Document (PAD) and in the PAD Summary Sheet and Financing Agreement (FA). Major changes were made to the Results Framework. While retaining the original number of PDO level result indicators, two new PDO indicators were introduced and two initial indicators dropped. The dropped indicators were “Reduction in sediment load in rivers and water reservoirs in Project intervention areas” and “Micro-projects that are rated satisfactory or higher by the participants”. The two new indicators introduced were “Community/User groups collaborating with GoK institutions in water and/or forest activities (% of which members are female)” and “Increased revenue from water use charges collected.”

A.4 Main Beneficiaries

6. The project beneficiaries included: (i) national institutions (Ministry of Environment, Water and Natural Resources (MEWNR)²⁹, WRMA, NIB and KFS which benefited from the capacity building; (ii) sub-national institutions (CFAs, CBOs, IWUAs, WRUAs whose capacities was enhanced by the project); (iii) local institutions including schools adopting efficient energy technologies; (iv) communities in and near project sites who benefited from livelihood opportunities that the project offered, including agro-forestry associations operating tree nurseries, irrigation water users associations putting their land to higher capacity utilization, livestock producers raising higher yielding cows and goats, rice growers cooperative gaining more members and micro-finance institutions doing higher value transactions with farmer groups, forest community associations and indigenous communities dependent on forests.

A.5 Project Components

7. The project had four components, and during the restructuring, none of them was changed.

Component One: Water Resource Management and Irrigation (US\$44.5 million, including US\$38.1 million IDA)³⁰

²⁸The project intervention areas were to include districts of: Kiambu, Thika, Murang' a, Nyeri, Kirinyaga, Laikipia, Nyandarua, Mbeere, Machakos, Mt. Elgon, West Pokot, Kakamega, Vihiga, Butere/Mumias; Lugari, Bungoma, Busia, UasinGishu, Trans Nzoia, Keiyo, Nandi North, Nandi South, Marakwet, Ugunja, Siaya, Bunyala, Kirinyaga East, Mwea East and Mwea West.

²⁹After the 2013 General Elections, GoK institutions were re-organized creating the Ministry of Environment, Water and Natural Resources (MEWNR). For ease of reference with other previous project documents, MoWI and MoFW have been maintained in the report.

³⁰The budgetary figures attached to the project components are drawn from the Project Appraisal Document.

8. This Component had two sub-components 1.1 & 1.2 whose objectives were “to strengthen WRMA’s capacity to implement the existing laws, policies, and regulations related to WRM” and “to consolidate irrigation reforms and investments” respectively.

Component Two: Management of Forest Resources (US\$22.4 million, including US\$21.1 million IDA).

9. This component built the institutional capacity of MoFW and the then newly established KFS to develop and implement a transparent and accountable regulatory and institutional framework, as well as provide targeted support to implement the Forests Act (2005).

Component Three: Livelihood Investments in the Upper Tana Catchment (US\$6.2 million, of which US\$4.5 million IDA).

10. The objective of the Livelihoods Investment in the Upper Tana component was to engage local communities in the management and conservation of water and forests resources. It involved funding for livelihoods investments through community based organization (CBOs). At project close, 706 micro-projects had been funded and implemented to the tune of Ksh 404, 074,987 with the communities contributing Ksh 83,123,702. A total of 4721 CBO committee members (2077 women and 2644 men) were trained.

Component Four: Project Coordination, Management, Monitoring and Evaluation (US\$4.9 million, of which US\$4.8 million IDA).

11. This component objectives was to provide overall managerial oversight and the project’s monitoring and evaluation. The project adopted a results-based implementation approach that entailed monitoring the implementation of project activities in various components and linking these with the component outcome indicators and the project development objective. The NRMP designed and operationalized a Management Information System (MIS) for reporting on the project development objective, activities and outputs. The system was found to be useful in planning and reporting on status/progress in the implementation of the project activities. The system was also used for data capture, analysis and information sharing between the NRM-PCO and the implementing agencies. The project also used Results Based Framework reporting system (matrix) which included outcome indicators. A number of reports were generated including monthly, quarterly, bi-annual, fieldwork and implementation status reports. The MIS was upgraded to align the system to the revised Results Framework matrix and project restructuring of 2011 where activities and indicators were removed and new ones introduced.

A.6 Other Significant Changes

12. The project was restructured in June, 2011 at the request of the GoK. The restructuring covered the following key aspects (i) revision of the Results Framework which included changes to outcome indicators. (See Annex 4 Results Framework Analysis) and (ii) reallocation of about 21% of project funds to allow coverage of financing gaps in irrigation investments and underestimated costs in technical consultancies.

B. Key Factors Affecting Implementation and Outcomes

B.1. Implementation

13. The GoK recognized that for sustainable NRM to be realized there was need for institutional reforms. It is in light of this that the GoK enacted the Water Act (2002), the Forest Policy and Forests Act (2005). The Water Act provided a basis for the implementation of water sector reforms supporting integrated water resource management. The forest legal and policy framework on the other hand proposed several reforms in forest management including institutional reforms, participatory forest management and enhanced private sector investment in forest products. The NRMP was conceptualized to strengthen the institutional reforms initiated and capacity building.

B.2. Factors that Affected Project Implementation

- The early 2008 Post-Election Violence caused major implementation delays. While the project became effective on December 10, 2007, almost six months after Board approval, it was not until April 2008 that implementation commenced. Whereas the implementation of the irrigation project was planned to commence in 2007/2008, this happened in 2008/2009, 12 months behind schedule.
- Unsatisfactory performance by Consultants and quality concerns on deliverables negatively influenced project implementation. For instance, detailed design and tender documents for Lower Nzoia Irrigation Project were submitted by the consultant on December 2011 more than one and half years after contracting and had to be retendered. Eventually, Lower Nzoia Irrigation Civil Works had to be transferred to the new IDA-financed WSCRIP.
- Non-performing works contracts, the WRMA terminated and retendered some contracts for drilling of groundwater monitoring boreholes due to non-performance of the contractors. Poor contractor performance similarly affected construction of Siaya, and Kisumu offices under WRMA.
- NRMP lacked key staff at critical points during the implementation period. This affected KFS and WRMA procurement sections significantly. During the initial stages, recruitment of key staff took place after project commencement and high staff turnover occurred during implementation. For instance, at the PCO, the incumbent M&E officer was the third since project inception.
- Challenges associated with implementation of social safeguards also influenced implementation of the project. KFS initial engagement with the VMGs was not easy as the latter viewed KFS with a lot of mistrust and suspicion. This was partly due to the influence of elitist groups in the community who turned out to be gate-keepers and controversial land issues which are sensitive and historical in nature. Similarly, during the supervision of Lower Nzoia project detailed design assignment, it was noted that the community felt uninvolved during design phase and hence had problems with engineering design.

B.3 Monitoring and Evaluation Design, Implementation and Utilization

B.3.1 M&E Design and M&E Implementation

14. A customized MIS was designed from the M&E results framework and results monitoring plan and put into account the project structure, project implementation

arrangements and implementing agency participation. The indicators in the results framework were adequate and capable of monitoring progress toward PDO achievement. An M&E Plan was designed during project preparation and included in the PIP. A full-time officer in the PCO was in charge of M&E activities during the entire project implementation working in collaboration with implementing agency M&E officers. Overall, the M&E plan was comprehensive and allowed for adequate measurement of outputs and outcomes. M&E was systematic with full time M&E officers at PCO and IAs. Capacity building of M&E was carried out at individual and institutional level across the IAs. This led to improved capacity with specific regard to data collection, analysis and reporting. The MIS was able to generate annual work plans and budgets, quarterly and annual progress reports as well as monitor progress in community projects in component 3 from the NRM-PCO. This was addressed through data sharing among within and by all affected institutions. The MIS was also upgraded to fix identified gaps and facilitate reporting of data relating to the revised PDO. The upgrade covered geo-referencing of CDD projects and social and environmental safeguards reporting.

B.3.2 M&E Utilization

15. Data collected through the M&E and MIS systems was critical in decision making. As per the design of the M&E and MIS the indicators identified in the results framework were reported on by IAs and were discussed by regular implementation missions. The M&E reports were also used at MTR and in informing restructuring of the NRMP. The M&E results enabled implementers to gain detailed insight in outputs from individual project activities and address implementation challenges. The MIS enabled reporting on the project activities and outputs, data entry and information sharing between the PCO and the implementing institutions.

B.4 Safeguard and Fiduciary Compliance

B.4.1 Safeguards Compliance

16. The NRMP triggered 7 safeguard policies. The project was classified under Category B since the investments were of a small or medium sized nature, with environmental, human health and safety, and trans-boundary impacts, that could be easily identified and mitigated. Despite the complexities in addressing issues related to vulnerable and marginalized peoples, restricted access to resources, and possibly, involuntary resettlement, a change in category was not considered necessary. The seven safeguard policies triggered for the NRMP and compliance initiatives by GoK include:- Forests (OP4.36) - (The Strategic Environmental Assessment of the Forests Act 2005, which included provisions for appropriate mitigation measures, was completed in June 2007), Physical Cultural Resources(OP4.11) - (The Environment and Social Management Framework (ESMF) contained provisions for including in construction contracts a clause referring to chance finds procedures), Indigenous Peoples (OP4.10) - Indigenous Peoples Planning Framework (IPPF, Involuntary Resettlement (OP4.12) – (A Resettlement Policy Framework (RPF) and Process Framework, Projects in International Waterways (OP7.50), Environment Assessment (OP4.01) – (ESMF provided for EIAs for NRMP), and Natural Habitat(OP4.04) – (ESMF provided mitigation measures in case there were any significant conversions or degradation of natural habitats).

B.4.2 Financial Management

17. The project documentation specified the procedure through which project funds would be issued by the World Bank, received by the GoK and released to the IAs through their line Ministries. During project implementation the implementing agencies maintained acceptable accounting, financial reporting, and auditing arrangements. At WRMA, NIB and KFS there were designated accountants to serve the project despite the project's payment processes being fully mainstreamed into the financial management systems of the implementing agencies and GoK. The PCO at the MoWI coordinated project implementation for three agencies. Adequate budgetary provisions for the project in the estimates and oversaw general compliance with all legal covenants related to financial management. Annual financial audit was carried out by the Kenya National Audit Office. All quarterly IFRs and audit reports were submitted to and reviewed by the Bank as required by the relevant Financing and Grant Agreements. There were no outstanding audit issues at project closure.

B.4.3 Procurement

18. Procurement of goods, civil works and employment of consultants was subject to the provisions of the "World Bank Procurement and Consultants Guidelines for the selection and employment of Consultants (May 2004)," and the Government of Kenya "Public Procurement and Disposal Act, 2005 which were fully adhered to as well as the Financing Agreement. There were notable delays in procurement processes for some of the key project activities arising from internal slow processing of key procurement related activities by the IAs and obtaining the no objection by the IAs from the Bank.

C. Assessment of Outcomes

C.1 Relevance of Objectives, Design, and Implementation

19. The project's objectives were consistent with the country's current development priorities and Bank's country and sectoral assistance strategies. The NRMP objectives and activities were also in line with the GoK Vision 2030.

C.2 Achievement of Project Development Objectives

PDO Indicator #1: Increased Revenue collected from water use charges

20. By the end of the project period, the end target for this indicator was surpassed to an achievement of increase in revenue by Ksh 37M. This achievement was largely attributed to improved compliance levels especially with large water users such as the Kenya Electricity Generating Company (Kengen). This indicator measured WRMA's capacity to regulate water use. In order to achieve this, WRMA had to increase its presence in different parts of the country, improve water resource monitoring and information gathering.

PDO Indicator #2: Area of forest in the project intervention areas managed according to approved forest management plans.

21. Throughout the project duration KFS managed to achieve results above the annual targets set for this indicator. By June 30th 2013, the achievement was 320,000 hectares of forest area managed under approved forest management plans. The achievement was largely attributed to implementation of Nandi, Uasin Gishu, Mt. Elgon, Nyeri, Kakamega and West Pokot forest management plans. More awareness on

Participatory Forest Management (PFM) was conducted, with support for development and implementation of PFM Plans in Mt. Elgon and Nyeri forest zones.

PDO Indicator #3: Community/User Groups Collaborating with GoK institutions in water and/or forest activities.

22. Community/User groups collaborating with KFS, NIB and WRMA were officially registered and thus the gender composition can be verified. By January 2011 there were 40 community groups of which 42% of the members were female. It was targeted that by December 2011, these groups would increase to 75 having female membership of 50%. At project end, NRMP had managed 172 groups with 50.5% of their members being female. These groups included CFAs, IWUAs and WRUAs.

Strengthened capacity of WRMA with direct investments

Intermediate Indicator #1: Micro-catchment action plans developed by WRUAs and approved by WRMA

23. WRMA was strengthened to facilitate oversight over the development, approval and implementation of micro-catchment action plans from the WRUAs. Over the project period this intervention target was achieved and a total of 51 WRUAs developed their Sub-Catchment Management Plans (SCMPs) and these plans were approved by WRMA against a target of 30 micro-catchment action plans. The achievement is attributed to community involvement in the catchment management through participatory approaches and intensified awareness creation.

Consolidation of Irrigation Sector Reforms and Investments

Intermediate Indicator #1: Area under irrigation in project intervention areas

24. The rehabilitation of Mwea, Ahero, West Kano, Bunyala and Perkerra schemes as originally scheduled during the appraisal was to enhance intensified use of the already opened scheme areas totaling 12,800 ha under improved irrigation water management. This target was adjusted to 9,427 ha during the 2011 project adjustment mission. By achieving a total of 9,740 ha of the already opened scheme land in the 5 schemes put under production, the project therefore surpassed its target of 9,427 ha. However, since only Mwea scheme was rehabilitated the results attained in land put under irrigation can be attributed to both improved water management and use efficiency in Mwea and capacity building of the IWUAs, which enhanced management of the farms across all the target schemes leading to more smallholders cultivating their lands. The rehabilitation of Mwea Irrigation Scheme has seen an increase in number of acreage put under production.

Intermediate Indicator #2: Percentage of scheme farmers satisfied with Board's Operation and Maintenance Services

25. The farmers' satisfaction level with the Boards' operation and maintenance has increased 95 percent compared to project baseline status which stood at 54 percent in 2011. During the baseline year only 54 percent of the farmers were satisfied with IWUA, O&M plan and water distribution and issues raised during the time in order of importance were mismanagement of IWUAs, inefficient service provision, high group fees, the 'no consultative approach of the group leaders' and inactive participation by members. The performance of IWUAs was rated as fair due to them being perceived as powerless

institutions that had to work within the provisions of the NIB. Through enhanced capacity building under NRMP, the IWUAs now understand their roles and responsibilities and this is helping in the implementation of the O&M plan and improved water distribution through joint collaboration between IWUAs and NIB.

Intermediate Indicator #3: Percent cost recovery for O&M of the project's irrigation investments

26. The appraisal annual target for O&M collection at project end was 90 percent. The annual percent O&M cost recovery (amount paid as a percent of invoice issues) from the scheme participating farmers was about 82 percent against the revised appraisal target of 90 percent. Through the establishment and strengthening of IWUAs, the project targeted to enhance significantly the payment of O&M charges by the farmers.

Reforms Necessary to transform and operationalize the Forest Department into a semi-autonomous service (KFS) implemented

Intermediate Indicator #1: Implementation of KFS Strategic Plan activities supported

27. NRMP supported the finalization and printing of the KFS Strategic Plan which was formally launched in 2009 as well as implementation of KFS Strategic Plan activities to an achievement of 80% at project end. The ISO Certification of the KFS process was penultimate awaiting issuance of the official certificate. The reforms were to strengthen the capacity of the KFS to effectively discharge its mandate and to invest in activities enabling institutional arrangements to foster forest governance and improve revenue capture not supported in the GOK budget.

Community Participation and Benefit sharing in indigenous forest management enhanced

Intermediate Indicator #1: New area brought under forest cover in project intervention areas

28. New areas were brought under forest cover in project intervention areas with a total of 7124 Ha being achieved by June 2013, against an end of project target of 3500 Ha. The impressive achievements were attained through the involvement of the local communities spearheaded by CFAs and intensive planting of trees during the long rains.

Intermediate Indicator #2: Vulnerable and Marginalized Group Plans prepared and activities initiated according to defined work schedules

29. Seven Vulnerable and Marginalized Group Plans (VMGPs) were prepared and activities initiated according to defined work schedule. Significant benefits and positive impacts were realized and included: improved income for some of the VMGs who are already reaping benefits from the micro-projects (dairy cows, greenhouse tomatoes, tree seedlings and poultry), and capacity building through the training of the VMGCC in group dynamics, conflict resolution within community and between community on how to be better farmers in in forests conservation and micro projects investments.

Intermediate Indicator #3: KFS technical staff trained in participatory forest management

30. Training was a major capacity building agenda in the project plan and hence 100 KFS technical staff received training in Participatory Forest Management. In addition, 388 technical staff of KFS received training on aspects of safeguards policy related to the VMGs.

Communities and Private Sector Investing in Commercial Forestry

Intermediate Indicator #1: Number of Production forests whose management has been transferred to the private sector

31. Substantial progress towards achievement of the above objective had been made. Guidelines for transfer of management of forests to the private had been developed. However, the process could not proceed as it was stopped by the National Alliance of Community Forest Associations (NACOFA) through a court injunction. Consequently, the target set was not achieved by the end of the project period.

Opportunities for livelihoods enhancement identified and promoted using CDD approach in project intervention areas

Intermediate Indicator #1: Number of livelihood based micro-projects supported

32. Using the CDD approach, the NRMP sought proposals from communities in the treatment catchments and forest perimeters to invest in livelihood enhancing micro-projects which support the natural resource base. A significant number of livelihood based micro projects were supported under NRMP. A total of 713 CBOs with a membership of 119,771 had been mobilized and trained. Of the members, 51% were women (61,012) represented while men were 49% (58,759). During the four calls for proposals, a total of 3332 proposals were received from community groups out of which a total of 706 projects were funded by the NRMP to a tune of Ksh 404,074,987 (NRM – Ksh 320, 951,265 , and CBOs Ksh 83,123,702). A total of 260 line agency staff and 4721 CBO committee leaders (2644 men and 2077 women) were trained on governance, financial management, and procurement, monitoring and reporting.

C.3 Efficiency

33. NRMP was efficient in utilizing resources to achieve significant benefits by also addressing national and local benefits through the effective protection and management of natural resources and strengthening and transformation of key institutions. Notably, the NRMP operated with minimum staffing as key project staff were mainly GoK employees with additional roles thereby efficiently utilizing resources and ensuring sustainability of gains realized. Benefits of project activities were quite substantial and as explained above, the economic analysis was approached at component level in order to inform the overall rating (See Annex 3 for details).

C.4 Overarching Themes, Other Outcomes and Impacts

Poverty Impacts, Gender Aspects, and Social Development

34. The CDD projects under the Livelihood Investments in Upper Tana Catchment exhibited early economic, social, health and environmental benefits and are viewed as serious opportunities to be scaled up under future projects. The type of income generating activities funded include: bee keeping, bamboo production, brick making, CBO capacity building, efficient irrigation, poultry rearing, dairy goats rearing, rabbit rearing, fish

farming, tree nursery establishment, artificial insemination, milk processing, biogas/Bio Latrines, fuel efficient stoves, dairy cows, seed bulking, fodder production, chip making, horticulture-green houses, value addition, and sunflower oil production. Improved gender representation in the Community/User groups is a positive step for the involvement of women to participate in decision making especially with regard to NRM.

D. Assessment of Risk to Development Outcome

35. There is no substantial risk of backtracking on project achievements given Kenya's strong commitment to the environment and sustainable development. There will be a need for continued activity to promote and build enforcement capacity, knowledge development, awareness building, and scaling-up of new community-level investment activities to achieve environmental and development benefits.

E. Assessment of Bank and Borrower performance

E.1 Bank Performance

36. The services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate implementation support. The Bank identified, facilitated preparation of, and appraised the operation such that it was most likely to achieve planned outcomes. The quality of the Bank's support was determined with regard to focus on development impact, supervision of fiduciary and safeguard aspects, candor and quality of performance reporting. The loan conditions advanced by the Bank were appropriate because they were to ensure that the project was implemented within the prescribed strategy. Resources were allocated to support transformation of both public sector as well as local institutions, and for capacity strengthening. However, the change of Task Team Leader (TTL) thrice during the project lifetime was not beneficial to NRMP as this slowed down project implementation. Essentially this meant that the new TTLs required some time to effectively acquaint with the project before efficiently providing leadership to NRMP.

E.2 Borrower Performance

37. The Government of Kenya as the borrower participated in the project design, negotiation, Loan Agreement, implementation, supervision and offering implementation support, undertaking specific studies, annual performance reviews, auditing and reporting. The GoK adhered to the Loan covenants which included provision of counterpart funding but with challenges in providing the same on time. The government also developed appropriate sectoral policies that contributed in enhancing implementation and realization of project objectives (e.g. Water Act 2002, Forests Act 2005). The Government set up project implementation structures such as PSC, PCO, AC and NPCC to facilitate project implementation and provided sectoral staff at each of these levels. All the line ministries that were involved in the project implementation gave appropriate support in the project implementation.

F. Lessons Learnt

38. Some key lessons learnt from the project are summarized below:

- Strengthening of farmer organizations as key stakeholders in irrigation water use has given farmers efficient delivery of service. When farmers' organizations are

strengthened, they become responsible and effective organizations to tackle problems of common concern and successful farming operations.

- Public awareness and participatory engagement of communities in planning of changes that affect them, is important for the success of the changes at implementation. This was particularly evident during the implementation of the Vulnerable and Marginalized Groups Plans (VMGPs) and KFS's engagement with Vulnerable and Marginalized Groups Coordinating Committees (VMGCC). The foregoing led to improved relationships between the KFS and VMGs resulting in better conservation of forests and the realization that with dialogue, consultations, communication and openness, both KFS and the VMGs had a lot to gain from each other. The CDD process of proposal preparation, submission, screening, approval, funding and implementation has proved that transparency and accountability in community led development approaches empowers communities to take the lead in their own development process.
- Future projects in the water sector should consider giving prominence to monitoring activities, proper macro and micro-project planning, regular and planned training of CBOs, WRUAs, and project staff. Equally, projects involving implementation by CBOs and WRUAs, should put foolproof structures for holding CBOs and WRUAs accountable to the resources they are given.
- NRMP activities were undertaken as part of the routine/mandate of IAs. This has the desirable effect that NRM activities will continue to be carried out in the post-project period. Mainstreaming of project activities in implementing agencies activities ensures sustainability after project closure.

5.2. Borrower's Comments on Draft ICR

39. We have gone through the entire draft ICR and it gives a reasonable assessment of the achievements realized during the NRM Project implementation period. The Project was implemented successfully despite the initial challenges encountered during the first and second years of the project.

Annex 6. Lessons Learned

1. The Project offers a number of lessons on institutions, investments, information and implementation for future GOK programming and external financial support to natural resources and the sectors it drives or helps protect. It also provides important lessons for Kenya as it devolves to lower levels of political and resource management.
2. The Project adds to the evidence base that natural resources including water, forest, and soils typically benefit from strong and fair participatory approaches to managing the resource and sharing the benefits from the resource, underpinned by robust resource monitoring and grievance redress. Sustainable NRM actions should therefore consider including (i) strong environmental and socio-economic monitoring underpinned by strong data gathering and information management, (ii) good incentives for local resource users to avoid free rider behavior that degrades natural wealth, (iii) secure and predictable rights to resources by local communities, and (iv) effective coordination on planning and prioritization among stakeholders and sectors, given that changes in an upstream area (forested watersheds) affect downstream actors (villages, irrigation users, cities) and can drive conflict.
3. NRM requires a serious effort to establish and use evidence, especially in an era of greater climate uncertainty and variability that requires higher levels of resilience than projects and programs have explicitly addressed in the past. This is especially true for many countries accessing IDA resources, and within those countries, the most marginalized poorest regions. Kenya is no different in this regard.
4. **Lessons regarding participatory approaches to NRM:** Community participation at all stages is critical to the success of any development project.
 - NRM relies upon participatory approaches that include efforts to clarify or establish rights and obligations; adequate resources and capacities to fully participate in decision-making; and the use of incentives and mechanisms to encourage environmentally sustainable behaviour. Bank-financed projects can support transformations to enhance participatory approaches.
 - The CDD livelihoods micro-projects can be a good approach for helping incentivize local communities in co-managing natural resources with the government while enhancing livelihoods. Much work needs to be done at the same time to incentivize Government agencies to likewise move toward co-management of the resource. For some forest agencies around the world, such a transformation is a paradigm shift that requires longer-term engagement than a 3-5 year project allows. The CDD project manual was a useful tool to promote activities that can allow communities to conserve more and produce more. NRM-based livelihoods can effectively improve community participation in sustainable co-management of resources while improving their livelihoods and mitigating destruction of catchments.
 - Clearly defined processes of CDD sub-project proposal preparation, submission, screening, approval, funding and implementation bring in high degree of

transparency and accountability in community led development approaches, which in turn empowers communities to take the lead in their own development process.

- Communities and stakeholders, if clearly mobilized and educated, with well-defined roles and responsibilities, they can contribute significant resources as well as gain social capital (leadership, governance and negotiation skills) that can outlive the project.

5. **Lessons for WRM:** NRM, especially land use and management in forest and agricultural areas, has implications on water resources and surface water infrastructure, and vice-versa. NRM is a complex, and often costly, process that entails numerous but unrelated constituencies (such as upstream forest dwellers, indigenous communities, downstream farmers, municipalities and other water users, as well as water and energy utilities):

- It is therefore essential for catchment management to be based on a sound and objective information base. The bathymetric surveys of the Masinga Dam, Kamburu Dam, Sasumua Dam and Nkakaini Dam provided an objective and quantifiable basis for understanding the degree of the sedimentation problem (from negligible to serious depending on the reservoir) and consequences of upstream land degradation on the major water supply and energy infrastructures in the Tana catchment.
- Catchment management needs to engage strong inter-agency collaboration and multi-disciplinary approaches for modifying SLM practices. Proper farming methods to avert issues of low soil cover is more relevant to controlling sediment levels in the rivers than are check dams. Prevention measures cost less than do remedial actions.
- The strong synergy created between NRMP and WaSSIP focusing on the management of critical catchments for important water storage infrastructure (Sasumua Dam, Nkakaini Dam and Kikuyu Springs) offers valuable lessons for the KWSCR and other similar investments elsewhere in Africa.
- For a water scarce nation such as Kenya, all freshwater resources are vital, and their proper management is essential. Flexibility in implementation is needed to meet the broad goals of NRM. Even though the Project was initially focused on surface water systems, once the importance of groundwater became evident, its subsequent attention and contribution to promoting groundwater management became notable:
 - i. Detailed study of the Kikuyu Springs (a small but stable source of water for Nairobi and Kikuyu communities) and development of a groundwater management plan for the springs directly contributed to the gazetting of the Kikuyu Springs recharge area, making it the first legally protected groundwater conservation area in Kenya.

- ii. The GoK reports that the support under NRMP in the study of the groundwater recharge of Kikuyu Springs and groundwater management options was an eye opener on the way to carry out groundwater assessments and prepare aquifer management plans. The involvement of key stakeholders in this activity contributed largely to its successful achievement.
- iii. In addition, Kenya's new groundwater development and management policy was supported to reflect changing knowledge about groundwater in the country and the practical challenges for managing the resource.

6. **Lessons for irrigation:** The Lower Nzoia design as well as the Mwea rehabilitation and outgrower expansion indicate lessons for large irrigation schemes to be environmentally, economically, and socially sustainable and resilient now and in the future during an era of greater climate variability and water stress:

- Irrigation governance reform is critical and should be based on accountability, transparency, and full water user responsibility of O&M, including cost sharing of investments costs and full cost recovery of O&M costs. This experience echoes the existing body of evidence.
- An inclusive and holistic participatory approach to sustainable large scale irrigation planning and development is critical for successful and sustainable implementation. For this to occur, projects should establish the necessary incentives for water users to play a critical role at early stages, and to facilitate long term win-win linkages between project beneficiaries, crop decisions and markets, agribusiness firms, banking, NGOs, associations, and service providers.
- Irrigation schemes need strong M&E to be sustainable and to be sustainably financed. NIB does not yet methodically report on key irrigation parameters like water use efficiency, income per drop, O&M cost per ha, or of key institutional development challenges like strengthening the financial sustainability of schemes and preparing for irrigation management transfer. Investments in general are not sufficiently prioritized according to quantitative social or economic evidence but are instead set largely by considerations of technical potential.
- Irrigation schemes can generate more resilient and environmentally sustainable livelihoods than would otherwise be possible by including coordinated SLM strategies such as: (i) System of Rice Intensification which can generate more crop per drop, (ii) soil and water conservation measures to manage salinization, or (iii) erosion prevention measures such as bunding, cover cropping and tree planting (with locally appropriate species) in the immediate command area to reduce reservoir siltation. There is no silver bullet, however, as local circumstances differ widely.

7. **Lessons for forest resource management:**

- Institutional reforms should be accompanied by local investment to ensure reforms have a practical outlet that benefits a diverse array of forest stakeholders. For example, the indigenous communities who, with NRMP support, developed

VMG Plans and implemented CDD activities to reduce stress on the forest, reported very high satisfaction rates and asked that the project continue, according to the Inspection Panel mission to the area. Such CDD support can be a trust-building measure that can be a starting point for modern methods of forest co-management. Yet such trust building carried out over the approximately three years of project implementation in the forests can later be un-done by higher-level political events outside the scope of one technical project.

- A heavy emphasis should be placed on promoting participatory approaches to forest management, monitoring, and use. This work needs to take place at all levels, from community up to national, and address capacities of all types of stakeholders and the Government, not only KFS. NRMP supported the first social development specialist at KFS who is now mainstreamed.
- Forest managers and the upstream and downstream communities reliant on forests should all have sufficient time, tools, and budget to build trust – beyond the short time frame of an externally-financed project. Likewise, GoK institutions should also have sufficient time, tools, and budget to build trust among partner agencies (such as those responsible for water, agriculture, tourism, wildlife, environment, rural development, planning and land) to engage in collaborative investment prioritization and support evidence-based land use planning at larger scales (i.e., watersheds or other landscape units).
- When faced with complex legacy land and livelihoods access issues that pre-date the project intervention, it is critical to fully assess the dynamics involved and properly estimate the effort needed to provide investment support to the area. This effort will require consultations that are well documented, well attended, substantive and regular, as NRMP has done. Only these types of consultations will generate free, prior and informed consent for intervention. Once under implementation, the project team must actively respond as NRMP did to any complaint, such as by directing the complainant to existing grievance redress procedures, and also be proactive by discussing issues with entities outside the direct scope of the Project, as NRMP did with MSSP and the Lands Commission. To support the above, consider putting in place a rapid response team that can carry out highly frequent field missions as did NRMP every ten weeks – assuming budget is available.
- Project documentation should be very clear what the project is supporting and what it is not able to support; in the case of KFS, it was never well placed to “offer assistance within the land restitution process to indigenous people to claim all lands over which they have lost control between 1895 and 2002” as the IPPF committed NRMP to do.

8. **Lessons for project implementation and preparation:**

- Linking triggers for investments to progress of reform steps at the sector level was one of the main causes for delays and had to be modified at MTR to allow for reforms and investments to go in parallel.

- The project design was relevant but too broad, addressing multiple reform issues among several IAs. The agencies had an insufficient technical capacity and staff retention, and the implementation period was short for the ambitious agenda. Sufficient time and budget needs to be given to project preparation to ensure that all the moving parts operate in concert.
- Before the start of the project, it is important to spend the time and resources needed to provide solid baseline information, based on consistent and realistic indicators, so that project impacts can be effectively assessed.
- Changes in human resources: Project staff changes at IAs should be kept to a minimum to maintain the learning curve. Also, NRMP was assigned three successive TTLs during its short life, possibly leading to higher transaction costs.
- Mainstreaming project implementation activities within the implementing agencies enhances ownership and ensures sustainability. Capacity building of institutional staff involved in implementation of project activities should be encouraged throughout the project period. In this way a critical mass for implementing future similarly funded projects is created and momentum can be gained on the delivery of project outputs.

Annex 7. List of Supporting Documents

Project Appraisal Document, Natural Resource Management Project. February 26, 2007

Restructuring Paper on a Proposed Project Restructuring of the NRMP, June 24, 2011

Level Two Restructuring Paper for the NRMP, June 17, 2013

Aide Memoires for Preparation, Appraisal and Supervision Missions of the NRMP
(November 2007 – June 2013)

Implementation Status and Results Reports of the NRMP (November 2007 – June 2013)

Kenya – NRMP – Report and Recommendations. Inspection Panel, WB, May 29, 2013

Project Completion Report – NRMP, MoEWNR, August 8, 2013; plus background reports:

NRM Livelihood Component 3, Evaluation Report, WRMA, June 2013

Report: Management of Forest Resources Component NRMP, KFS, August 23, 2013

Irrigation Subcomponent, NRMP, Draft Completion Report, August 2013

NRMP Component 1.1 and 3, WRMA, August 2013

3rd Annual Environmental Audit NRMP, Millennium Management Consultants LTD, June 2013

Technical World Bank mission report: Implementation Support Mission to Cherangani Hills and Mt Elgon, June 9-19, 2013

