Terminal Evaluation Review form, GEF Evaluation Office, APR 2014

1. Project Data

Summary project data			
GEF project ID		377	
GEF Agency project ID		73	
GEF Replenishment Phase		Pilot Phase	
Lead GEF Agency (include all for joint projects)		UNDP	
Project name		Community Based Rangeland Rehabilitation for Carbon Sequestration and Biodiversity	
Country/Countries		Sudan	
Region		AFR	
Focal area		Climate Change	
Operational Program or Strategic		GEF3 STRM: Short Term Response Measures	
Executing agencies involved		Range and Pasture Administration (RPA)	
NGOs/CBOs involvement		Secondary executing agency	
Private sector involvement		One of the beneficiaries	
CEO Endorsement (FSP) /Approval date (MSP)		08/01/94	
Effectiveness date / project start		10/03/94	
Expected date of project completion (at start)		02/01/00	
Actual date of project completion		02/28/00	
Project Financing			
		At Endorsement (US $M)	**At Completion (US $M)**
Project Preparation Grant	GEF funding		
	Co-financing		
GEF Project Grant		1.500	1.496
Co-financing	IA own		
	Government	0.085	0.085
	Other multi- /bi-laterals		
	Private sector		
	NGOs/CSOs		
Total GEF funding		1.500	1.496
Total Co-financing		0.085	0.085
Total project funding		1.585	1.581
Terminal evaluation/review information			
TE completion date		April/May 2001	
TE submission date		April/May 2001	
Author of TE		Dr. Bill Dougherty (Team Leader), Dr. Awad Abusuwar, Mr. Kamal Abdel	
TER completion date		09/03/14	
TER prepared by		Sean Nelson	
TER peer review by (if GEF EO review)		Joshua Schneck	

2. Summary of Project Ratings

Criteria	Final PIR	IA Terminal Evaluation	IA Evaluation Office Review	GEF EO Review
Project Outcomes	N/R	N/R	N/R	MS
Sustainability of Outcomes	N/R	N/R	N/R	U
M&E Design	N/R	N/R	N/R	U
M&E Implementation	N/R	N/R	N/R	U
Quality of Implementation	N/R	N/R	N/R	MU
Quality of Execution	N/R	N/R	N/R	MS
Quality of the Terminal Evaluation Report	-	-	N/R	S

3. Project Objectives

3.1 Global Environmental Objectives of the project:

The TE defines the main GEO as "to sequester carbon through the implementation of a sustainable, local-level natural resources management system that that prevents degradation, rehabilitates or improves rangelands" (TE, p. 6). By improving land management practices, project lands could be effectively used as carbon sinks. In addition, protecting local biodiversity was a secondary GEO, though the biodiversity goals were often ill-defined.

3.2 Development Objectives of the project:

The DOs were closely connected to the GEO. The TE states, "the goal of the project was to demonstrate at the local level that an appropriate community-based natural resource management system could be implemented that would reverse prevailing land degradation trends, and effectively sequester carbon" (TE, p. 10). Because droughts often affected Bara Province, where the project was carried out, farmers were often forced onto marginal lands, which exacerbated local environmental problems (erosion, loss of biodiversity) and reduced the capacity of these lands to function as carbon sinks. By creating incentives, improving local practices and enhancing local capacity to create and preserve carbon sinks, project leaders hoped to empower local stakeholders to address climate change.

The TE also states that the major project development goal was "to reduce the risks of production failure in a drought-prone area by providing alternatives for sustainable production, so that out-migration will decrease and the population will stabilize." (TE, p. 6). Elaborating on this point, the TE authors later added:

> Certain measures intended to address socio-economic conditions were included in the project design in order to meet the community's short-term survival and production needs. Among others, these activities focused on fodder production, water development, livestock restocking, development of village-level irrigated gardens, introduction of revolving credit systems, and drought contingency planning. The driving premise for such activities was that achieving a long-term improvement in natural resource management and land rehabilitation could only be accomplished if accompanied by development activities that met villagers' near term needs (TE, p. 10).

It should be noted that these DOs were secondary to the GEO of sequestering carbon and were part of the project explicitly to help make carbon sequestration more likely.

The following were the project's 4 Immediate Objectives:

1) To improve local sustainable natural resource management capacity "to prevent land degradation and to rehabilitate or improve rangelands" (PD, p. 25).

2) To conduct post-drought rangeland regeneration and rehabilitation in a way that improves local environmental protection capacity.

3) To hold public education campaigns on environmental protection and introduce new technology in order to help diversify local production systems

4) To enhance local capacity to survive the effects of drought, while also helping to breathe new life into local household economies.

3.3 Were there any **changes** in the Global Environmental Objectives, Development Objectives, or other activities during implementation?

The TE does not explicitly mention any changes to the GEOs or the DOs.

4. GEF EO assessment of Outcomes and Sustainability

Please refer to the GEF Terminal Evaluation Review Guidelines for detail on the criteria for ratings.

Relevance can receive either a Satisfactory or Unsatisfactory rating. For Effectiveness and Cost efficiency, a six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess. Sustainability ratings are assessed on a four-point scale: Likely=no or negligible risk; Moderately Likely=low risk; Moderately Unlikely=substantial risks; Unlikely=high risk. In assessing a Sustainability rating please note if, and to what degree, sustainability of project outcomes is threatened by financial, sociopolitical, institutional/governance, or environmental factors.

Please justify ratings in the space below each box.

4.1 **Relevance**	Rating: **Satisfactory**

The project was relevant to both the GEF and to the Government of Sudan. According to the PD, increasing/creating carbon sinks is one potentially effective tool for addressing climate change, in-line with GEF objectives.

The project was somewhat less relevant to the Sudanese government's priorities at the time, though still relevant. While the government was a UNFCCC signatory, climate change mitigation was not a major policy focus at the time. The project involved issues and techniques that existed outside the framework of the government's 1992-2000 Comprehensive National Strategy. The Sudanese government though was supportive of projects to promote smallholder agricultural production. In addition, it had stated it was committed to promoting issues like "environmental conservation, sustainable production, and assistance to drought-affected areas" (TE, p. 11).

4.2 **Effectiveness**	Rating: **Moderately Satisfactory**

Overall Results:

All of the project initiatives were carried out with the ultimate goal of improving local carbon sequestration capacity and potential on project lands. It is clear much work went into improving the maintenance and cultivation of project lands to improve their effectiveness as carbon sinks. However, due to poor measurement and verification, it is uncertain how much carbon was actually sequestered in project lands due to project actions. There was no plan in place to continue to monitor project sites past the project's end, which calls into question the ability to verify that carbon is being sequestered at the rates predicted or in a cost-effective manner. Project members claimed that their actions will lead to roughly 61,000 tC sequestered in project lands over 20 years. However, this claim is based on carbon being sequestered due to both direct and indirect results of local farmers completely ceasing to use marginal lands. Since there were no plans to continue funding local farmers, there is no reason to believe this optimistic scenario.

UNDP leaders appear to have salvaged the project during the latter half of its operational life. Training was widespread. Most of the results achieved below were achieved after UNDP leaders moved the project away from RPA management.

Objective 1: To improve local sustainable natural resource management capacity "to prevent land degradation and to rehabilitate or improve rangelands" (PD, p. 25): **Moderately Satisfactory**

A high number of both public and private rangelands were set aside for regeneration until they had enough vegetation to be grazed sustainably. Communities set aside 700 ha of communal land to promote sustainable grazing practices. Farmers also set aside an additional 500 ha of private land for this same initiative. The PD had only focused on public lands, so a high level of private involvement went above expectations.

However, not every sustainable resource management initiative met with complete success. Project leaders had to forgo their original dune re-vegetation projects due to local opposition. Local residents

believed this part of the project was a cover for taking over these lands. As a result, the dune restoration initiative had to be scaled down and carried out at a different location. The windbreak portion of the project also failed to meet expectations. Only 108 km of windbreaks were created, falling short of the target of 195 km. Diesel pumps were included in the project's physical capital stock. These 6 diesel pumps are expected to emit 120 tC a year, which somewhat undermines the carbon capture portion of the project.

Immediate Objective 2: To conduct post-drought rangeland regeneration and rehabilitation in a way that improves local environmental protection capacity: **Satisfactory**

In practice, these results overlapped with Immediate Objective 1's results regarding improved rangelands. The sustainable rangeland practices mentioned in Immediate Objective 1's section include the use of drought-resistant grasses. The 700 ha of public land included in this part of the project exceeded the original goal of 500 ha.

Immediate Objective 3: To hold public education campaigns on environmental protection and introduce new technology in order to help diversify local production systems: **Satisfactory**

45 public education training sessions were held in the 17 project villages from 1998-1999. Roughly 2,400 people received some form of training through the project. These trainees were 58 percent women, which helped to improve women's local capacity, which was in-line with the project's strategy of targeting women in particular.

On the technology side, over 90 percent of village households in project villages adopted improved cookstoves through the project. This helped reduce firewood use between 33 percent and 50 percent. Guar was successfully introduced as a “fodder conservation technology.” It is a “leguminous-rich protein forage” that was introduced “to assist in sheep fattening and milking herds” (TE, p. 36). Participants in project villages produced roughly 4 million Sudanese pounds of guar in 2000.

Immediate Objective 4: To enhance local capacity to survive the effects of drought, while also helping to breathe new life into local household economies: **Moderately Satisfactory**

This is the broadest overall goal. The project created new local institutions to help promote sustainable practices and to make communities resilient in the face of drought, which would limit outward migration, but TE states that this system would not “be adequate on its own to have a lasting impact of reduction of out-migration” (TE, p. 43). The institutional framework is as follows:

- A coordination committee (“Tansigh”) that acted for the Rural Council as a whole to play an oversight role on project activities.

- Implementation committees (“Tanfeez”) in each of the 5 Village Councils. Each Tanfeez had sub-committees established under it that dealt with 6 issue areas: “grazing management, water management, women's vegetable gardens, pastoral women development, men's credit and women's credit” (TE, p. 23).

- Village development committees (VDCs) in all 17 project villages that focused on “grazing management, women’s irrigated gardens, and credit systems” (TE, p. 18). These were entirely made up of local residents and stakeholders. These were created to better suit local needs and to put the focus on village communities instead of the Village Councils.

- Coordination committees were formed in each of the 5 Rural Councils to handle executive and women's issues.

This institutional framework helped achieve a high degree of local participation in the project.

The grain storage and credit program had mixed results. While 3 storage facilities were built, it is unclear if residents in all 17 project villages had access to these storage facilities. While the TE claims the credit system based around these storage facilities was well-functioning and had a high participation rate, the TE rates the system's repayment status as poor. This part of the project was undertaken with the World Food Programme (WFP), but the WFP was unable to meet even 50 percent of its capital grant assistance. In theory, if this capital grant assistance had been delivered, it “could have enabled the project to accelerate the process of promoting a full-fledged credit-based food security and risk-management strategy,” (TE, p. 42) but the project leaders were unable to do so. This limits the project's success in making local communities resilient against droughts.

The women's irrigated gardens initiative appears to be a success for helping the project improve local socioeconomic conditions. This was an undertaking to improve women's socioeconomic livelihoods. The gardens seem to be economically sustainable past the project end date, in part because the women sell their output to nearby villages. However, 6 of the gardens used diesel-fueled pumps, which undermine the carbon capture component of the project. In addition, these 6 gardens need a steady diesel source to remain viable.

A note on the project's early problems and biodiversity goal problems:

The early project stages were rather ineffective. RPA employees were unclear how to interpret the PD's goals because the socioeconomic goals were complex and multifaceted, often providing little guidance. The biodiversity goals were of limited effect because there were no clear benchmarks established ahead of time to determine success or failure.

Project members started collecting baseline data on project sites and villages late after experiencing delays. The lack of data collection on soil carbon and the fact that the sites for the baseline data collection were not adequately identified is also troubling. However, the five land use boundary maps made for each Village Council appear to have been created effectively. Data collection on initial socioeconomic and agricultural conditions also appears to have been satisfactory.

Many of the problems the project team ran into on the ground related the biodiversity goals. Biodiversity was seen a “co-benefit” to the larger GEO of carbon sequestration. As a result, the biodiversity goals were often ill-defined in the PD, which caused different biodiversity goals to come into conflict with regard to which initiatives should take priority, causing some to remain partially- or un-

implemented. The project team appears to have had little guidance about what they were expected to achieve on this front, so TE explicitly mention that they had to rely on anecdotes to show they met their biodiversity goals. For instance, the PD called for a wildlife consultant to assess local wildlife biodiversity. However, project management felt the funds for this wildlife consultant would be better spent on local training and community development. The TE finds that one of the biodiversity goals set forth in the PD – "cultural diversity" – was wrongly forced into the biodiversity framework. "Cultural diversity" here refers to increasing the local knowledge base for natural resources management. As the TE authors wrote, this would "have been better classified as a development benefit… related to capacity strengthening" (TE, p. 16).

4.3 **Efficiency**	Rating: **Moderately Unsatisfactory**

The project's efficiency is difficult to assess due to gaps in M&E design and execution. This is further elaborated upon in the sections dedicated to discussing M&E issues, sections 6.1 and 6.2. The rating of Moderately Unsatisfactory for project efficiency reflects poor financial and time management during the first 2 years of the project while it was under RPA administration. Project performance appears to have improved after the first 2 years.

The TE notes that if the high sequestration scenario comes to pass over 20 years, the project's cost for carbon sequestration will be US$3.50/tC. However, if only carbon sequestered as a direct result of the project by the project's end is considered, cost rises to US$375/tC. This gap of US$371.50/tC is substantial. Since the more cost-effective scenario is unverifiable (and likely unrealistic), one cannot get a clear picture of how cost-effective the project was at achieving its main overarching goal. With this said, the TE did not provide a target cost for sequestration per ton of carbon.

In addition, the training budget for local stakeholders had to increase from US$39,000 to US$113,000 to meet the project's training goals.The TE also notes that "there appears to be have been a serious issue arise regarding the management of project resources," (TE, p. 17) but the authors do not clarify this point. The TE does not clarify if this means financial mismanagement, manpower mismanagement or time mismanagement. The project also saw few results in its first 2 years while under RPA administration. This was partly due to the fact that the PD was complex with interlocking objectives whose relationships were not always clear on the ground. In addition, communication and coordination between field workers and the UNDP Khartoum office was often poor.

Once project administration was moved away from RPA, project management appeared to improve. However, this required adding an extra year and an additional $500,000 in financing to complete the project. The TE also does not explicitly state if UNDP took direct control of the project or tasked another organization with executing the project.

4.4 **Sustainability**	Rating: **Unlikely**

The project needed to have a financial support system to finance the continuation of sustainable practices that promote carbon sequestration, as well as to have a proper M&E/MRV system in place to measure the actual amount of carbon sequestered. Neither of these systems were in place to continue past the project's end. The TE worries that without such systems in place, local residents would face incentives to revert to older unsustainable practices.

Risks to the sustainability of project outcomes are further assessed along the following 4 dimensions:

Sociopolitical : **Unable to Assess**

The TE does not state how supportive the Sudanese government was of the project once project management was moved away from the RPA. As a result, the government's future support for the project could not be assessed.

Financial Sustainability: **Unlikely**

The TE states that since there was neither a plan nor financing for continuing any of the sustainability activities beyond the end of the project, the project's financial sustainability was in doubt. There was no funding set aside for ensuring that local stakeholders continued to use the sustainable practices learned through the project. The grain credit and storage program's failure to become a functional credit system to protect food security and promote effective risk management also hurts the project's financial sustainability. The women's irrigated gardens appear to be the only part of the project that could likely continue without ongoing project financial support, but these gardens were not a primary focus of the project.

Private landholders who engaged in the allocated rangeland scheme have an incentive to continue to use sustainable practices. While the communal/public lands used as part of the scheme can potentially run into a "tragedy of the commons" overgrazing problem, local private farmers face long-term incentives to make sure they will always have enough grasses for grazing. As long as the amount of grasses remain high, so will the relative amount of carbon sequestered, while also keeping local erosion low. However, if farmers face strong incentives to forgo long-term sustainability in favor of short-term grazing, they will likely due so. There will need to be lasting institutions that can provide incentives for sustainable practices, but such funding was lacking as of the TE's writing. On the other hand, nearby villages have started adopting some of the project's sustainability measures on their own, which shows the potential for organic replication.

In addition, the project lands' carbon sequestration value lies in its total amount of area. It appears that on a per hectare basis, these lands have a low carbon sequestration value. This means that upkeep and continuation of local sustainable practices on a wide scale is required to ensure the project contributed value added past the project closing date.

Environmental Sustainability: **Unable to Assess**

The TE does not mention direct environmental risks beyond the risk of drought. The project's environment sustainability depends on local communities' resilience against drought. However, the TE does not directly address how likely or unlikely drought was at that point.

Institutional Sustainability: **Moderately Likely**

The project organizational structure across the project villages also appears to have been well-implemented and adjusted to local conditions. This local institutional structure was put in place with a high degree of local input and participation, especially at the VDC level. As a result, local participants have an incentive to maintain these institutional structures. However, it is unclear if this could happen without ongoing financing.

5. Processes and factors affecting attainment of project outcomes

5.1 Co-financing. To what extent was the reported co-financing essential to the achievement of GEF objectives? If there was a difference in the level of expected co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

The TE does not directly assess co-financing. The Sudanese government pledged approximately US$85,000 in co-financing for the project. The TE provides no reason to believe this was not delivered in full. The TE does state that "government funding in support of project activities has been modest, and was evident only toward the end of the project when some cost-sharing took place" (TE, p. 46). However, they do not say if this funding was below the government's initial promised funding amount. The TE also does not state if the additional US$500,000 to finance the project's extra year came from the GEF or other co-financing sources.

5.2 Project extensions and/or delays. If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

Collected the initial local baseline data experienced many delays. This likely contributed to baseline data problems, which make assessing how much carbon will actually be sequestered due to project activities. The sustainable rangeland initiative also experienced delays, but this turned out to be one of the most successful parts of the project. A fodder trial nursery also experienced delays before it was set up. In the end, the nursery was still used to teach local residents "sowing methods, seedbed preparation, watering, and fertilization" (TE, p. 34). The TE does not mention any further delays. After moving the project away from RPA management, the project was extended for an extra year with an additional US$500,000 in funding.

5.3 Country ownership. Assess the extent to which country ownership has affected project outcomes and sustainability? Describe the ways in which it affected outcomes and sustainability, highlighting the causal links:

Project execution was initially the responsibility of the RPA of the Sudanese government. However, this phase was poorly implemented, including mismanaging resources and pursuing goals in a contradictory and incomplete manner. RPA employees continued to be involved in the project, but not under RPA control. The TE calls for continued RPA engagement in project activities after the project closing date, but it is unclear from the TE whether or not the RPA would actually do so. RPA project mismanagement reflects a lack of on-the-ground support for the project amongst government stakeholders. In addition, the TE states that "government funding in support of project activities has been modest, and was evident only toward the end of the project when some cost-sharing took place" (TE, p. 46).

Ownership was strong at the local levels, especially at the Village Development Committee level. Due to the fact that project activities were often localized to meet local needs, local stakeholders had a high level of engagement at the village level. While continued central government engagement remained weak, local structures continued to own the project.

6. Assessment of project's Monitoring and Evaluation system

Ratings are assessed on a six point scale: Highly Satisfactory=no shortcomings in this M&E component; Satisfactory=minor shortcomings in this M&E component; Moderately Satisfactory=moderate shortcomings in this M&E component; Moderately Unsatisfactory=significant shortcomings in this M&E component; Unsatisfactory=major shortcomings in this M&E component; Highly Unsatisfactory=there were no project M&E systems.

Please justify ratings in the space below each box.

6.1 **M&E Design at entry**	Rating: **Unsatisfactory**

The PD provides a schedule for M&E reporting and allocated US$20,000 for evaluation missions. However, the PD was rather vague on what activities would actually be monitored and according to what metrics and methodologies. There was no mention in the PD of M&E targets, indicators or how project management should adapt to M&E results. The PD did call for collecting baseline data, which included create 5 land boundary maps, 5 land use maps, 1 livestock movement map. This step also included collecting socioeconomic data on local communities. However, it did not provide a clear framework for collecting baseline carbon sequestration data. The PD did call for creating "a soil and vegetation baseline survey" (PD, p. 27), but was vague on what this should entail. These shortcomings likely affected M&E implementation, as noted in section 6.2. The biodiversity M&E design was inadequate in the PD because the biodiversity goals were vague from the start.

6.2 **M&E Implementation**	Rating: **Unsatisfactory**

The TE finds major shortcomings with the implementation of project M&E . An international M&E consultant was supposed to assess the carbon sequestration element of the project, but the consultant entered the field with just a year left in the project in 1999. The Institute of Environmental Studies at the University of Khartoum sent their own consultants. However, this stop-gap approach had serious drawbacks:

- While researchers tested site locations in 1996 to make a baseline for comparison, it was not clear which locations these actually were. This meant that when consultants collected site data in 1998, they did not necessarily collect data from the same sites, which means that direct comparisons with the 1996 baseline data could not be made.

- There were inconsistent data collection methods between the 1996 baseline and the 1998 sample. The woody biomass sample methodology in particular is noted in the TE for being inconsistent.

- The international consultant realized in 1999 that the previous consultants did not account for the soil carbon component. This makes comparisons between the 1996 baseline and the 1998 samples additionally suspect. As a result, the authors correctly note that "the lack of a suitably designed and vetted program to quantify the carbon sequestration benefits achieved by project activities calls into question the credibility of project claims in this regard" (TE, p. 20). This component was subsequently added, but without the benefit of baseline 1996 numbers.

- The local consultants were inconsistent with the PD over which carbon sequestration issues they monitored. Not all of the project's carbon sequestration components were monitored per the PD. While the consultants monitored rangeland management and rangeland improvements, they did not monitor the dune stabilization and windbreak parts of the project. Instead, the consultants noted the reduction in fuelwood demand. While the consultants did not monitor the reduction in demand for wood as a construction material and changes in land use, they did infer these effects.

- The PD's biodiversity goals were unclear. As a result, the biodiversity M&E consultant was not monitored since project managers felt that this funding would be better spent on training activities.

- The socioeconomic M&E unit was also created late in the project's life in 1998. However, this M&E team appears to have done a relatively better job of obtaining useful data on socioeconomic status and progress regarding the project's effects.

7. Assessment of project implementation and execution

Quality of Implementation includes the quality of project design, as well as the quality of supervision and assistance provided by implementing agency(s) to execution agencies throughout project implementation. Quality of Execution covers the effectiveness of the executing agency(s) in performing its roles and responsibilities. In both instances, the focus is upon factors that are largely

within the control of the respective implementing and executing agency(s). A six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess.

Please justify ratings in the space below each box.

7.1 **Quality of Project Implementation**	Rating: **Moderately Unsatisfactory**

The TE states that the project design was overly complicated, especially with regard to the biodiversity goals. They were unquantified, lacked cohesion and distracted from the main GEO. While it is important to understand how the different parts of an ecosystem interact to affect environmental goals, field workers cannot work on all aspects at once. Trade-offs due to time and financial constraints have to be taken into account. A project with limited resources cannot tackle every part of a local ecosystem without distracting from the overall project goal. During the project's early stages, project managers were unclear on which biodiversity goals they should focus. In addition, the poor quality of M&E design also undermined the project.

Tasking the RPA with overseeing the project did not work out as planned. In retrospect, project leaders likely should have chosen a different primary executing agency. During the first 2 years, the UNDP office in Khartoum poorly managed communications with project staff in the field. UNDP did salvage the project by moving its execution away from the RPA, though the TE is unclear whether or not UNDP itself became the executing agency at this point.

7.2 **Quality of Project Execution**	Rating: **Moderately Satisfactory**

The early years of the project under RPA leadership appear to have been mismanaged, including mismanaging project resources. However, local UNDP intervention appears to have salvaged a project that was nearly canceled. Project work was carried out on all of the GEOs and DOs, along with the immediate objectives. The fact that the project rangeland rehabilitation initiative exceeded expectations is a particular point in the project's favor. In addition, the local institutions and training helped to ensure local residents were engaged and active in promoting and carrying out sustainable practices. The exception is the project's developmental goal of helping to ameliorate outward migration, which was addressed indirectly through setting up the VDCs. The fact that nearby villages also started replicating project activities is also a promising sign.

However, M&E execution was often poor and performed on an ad hoc basis, though this was partly due to inadequate M&E design and planning. M&E was often performed inconsistently and often with poor record keeping. Poor M&E undermines project claims to success in reaching the main GEO.

8. Assessment of Project Impacts

Note - In instances where information on any impact related topic is not provided in the terminal evaluations, the reviewer should indicate below that this is indeed the case. When providing information on topics related to impact, please cite the page number of the terminal evaluation from where the information is sourced.

8.1 Environmental Change. Describe the changes in environmental stress and environmental status that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

Through controlling erosion, maintaining/restoring marginal lands and helping local stakeholders enact sustainable practices, the project likely did advance its goal of increasing the local area's carbon sequestration by the end of the project. However, this cannot be truly verified due to poor M&E, which the TE authors acknowledge. In addition, since there were neither plans nor funding to ensure local stakeholders continued to use sustainable practices or to continue to monitor and verify local carbon sequestration, there is no way to ensure enhanced carbon sequestration will continue past the project end date. As a result, the estimated amount of carbon sequestered due to the project that the TE authors calculate is difficult to assess as meaningful. The TE notes that the lack of a baseline and poor early monitoring means that it is difficult to ensure that any possible improvements in local carbon sequestration capacity could be mostly attributable to project activities.

Early attempts at re-vegetating sand dunes had to be canceled due to local opposition. Different sites were chosen that were smaller in total area and potential carbon sequestration. Similarly, only about half of the total of targeted amount of windbreaks to fight erosion had actually been created (108 km out of a 195 km targeted). The amount of transplanting of species to vulnerable grazelands also failed to meet expectations. No systematic verification attempts were made to determine the exact amount of carbon sequestered through these particular projects.

8.2 Socioeconomic change. Describe any changes in human well-being (income, education, health, community relationships, etc.) that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

The widespread training initiatives undertaken during the project have increased local capacity for sustainable development (TE, pp. 18-19, 26). For instance, farmers better understand the importance of reducing short-term grazing to allow marginal rangelands to recover, which prevents erosion and allows for more grazing potential in the future. This potentially makes local agricultural development more sustainable, as short-term gains can be balanced against long-term economic needs. Such sustainable

development strategies can potentially have positive spillover effects on health, education, income and social cohesion.

In addition, these human development improvements have the potential to prevent future outward migration from project areas. However, there was no funding to ensure such practices were followed and nurtured in the future. The project initiative most likely to have a lasting socioeconomic impact is the women's irrigated gardens, though this was not part of the project's main focus.

8.3 Capacity and governance changes. Describe notable changes in capacities and governance that can lead to large-scale action (both mass and legislative) bringing about positive environmental change. "Capacities" include awareness, knowledge, skills, infrastructure, and environmental monitoring systems, among others. "Governance" refers to decision-making processes, structures and systems, including access to and use of information, and thus would include laws, administrative bodies, trust-building and conflict resolution processes, information-sharing systems, etc. Indicate how project activities contributed to/ hindered these changes, as well as how contextual factors have influenced these changes.

> a) Capacities: The rather extensive training schedule and the number of attendees and events suggest that the project helped to increase local capacity to maintain sustainable practices. The training covered "community development (e.g., soap production, macaroni production, handicrafts and food processing, women's irrigated gardens), natural resource management (e.g., range management, grazing systems, pest management, fodder production), credit systems, drought mitigation, animal production and health, and other topics" (TE, pp. 18-19). The local project institutions have also created a system for promoting sustainable development (TE, pp. 44, 46).
>
> b) Governance: The project helped to highlight shortcomings in the local RPA administration that could lead to improvements in project resource management. RPA members helped to carry out project goals even after project execution was moved away from the RPA. RPA staff members also participated in project training programs. The main governance improvements came from the local committee structures that project leaders and local stakeholders created to support and maintain the project.

8.4 Unintended impacts. Describe any impacts not targeted by the project, whether positive or negative, affecting either ecological or social aspects. Indicate the factors that contributed to these unintended impacts occurring.

The TE does not directly address unintended consequences as a topic for analysis. However, the TE authors do note several missteps made during the project's early execution. For instance, dune stabilization efforts in El-Meliesa and Es-Sabahia had to be abandoned because locals believed project leaders were trying to eventually take over the dunes for themselves. This likely affected local views of the overall project, but this point is not addressed in the TE. In addition, some attempts to make grazing rangelands sustainable failed due to choosing the wrong grass species. Grasses were to be chosen that could both sequester carbon and be palatable to local livestock. Using Aristida pallida *(Um Semaima)*

undermined the project because sheep would not eat these grasses, but project members later corrected for this mistake.

On the positive side, there were numerous private applications for setting aside private lands for individual grazing allotments. The project designers had envisioned setting aside only communal lands for project improvement and management. These lands were to be re-seeded with grasses to lower erosion and increase their carbon sequestration capacities. Grazing would not be allowed on such land during this part of the process until such lands had properly recovered. It was assumed that local stakeholders would only agree to do so with communal lands. However, over 40 percent of the area that fell under this part of the project were private lands, which were actually more vulnerable to short-term degradation. This came out to 543 private hectares (43.7 percent of total lands set aside), compared to 700 public hectares.

8.5 Adoption of GEF initiatives at scale. Identify any initiatives (e.g. technologies, approaches, financing instruments, implementing bodies, legal frameworks, information systems) that have been mainstreamed, replicated and/or scaled up by government and other stakeholders by project end. Include the extent to which this broader adoption has taken place, e.g. if plans and resources have been established but no actual adoption has taken place, or if market change and large-scale environmental benefits have begun to occur. Indicate how project activities and other contextual factors contributed to these taking place. If broader adoption has not taken place as expected, indicate which factors (both project-related and contextual) have hindered this from happening.While the TE mentions some project techniques had expanded to nearby non-project villages, the TE does not explicitly state which initiatives these were.

9. Lessons and recommendations

9.1 Briefly describe the key lessons, good practices, or approaches mentioned in the terminal evaluation report that could have application for other GEF projects.

The TE authors directly state that the experience of this project underscores that project public ownership is important. The more engaged the local community was in the processes and outcomes of project activities, the broader and deeper the results. This led to “a high degree [of] autonomous self-monitoring” (TE, p. 50). In addition, as mentioned in section 8.4, engaging private asset holders can also yield positive benefits. Over 40 percent of lands set aside for improvement were private lands whose holders did so voluntarily.

9.2 Briefly describe the recommendations given in the terminal evaluation.

- Perhaps most importantly, the TE authors believe that carbon-monitoring had to continue at project sites for an additional 3 to 5 years. Due to deficiencies in the previous carbon-monitoring attempts, this extended monitoring would have to be expanded in scope to include monitoring

soil organic carbon. They also support collecting additional support data on “rainfall, temperature, and socioeconomic conditions” (TE, p. 49).

- The internal processes that allowed three of the sub-projects to be successful should be carried over to future projects: 1) allocating private lands for improvement and then private grazing, 2) setting up the committee and subcommittee structure throughout the project areas and 3) the improved cookstoves initiative.
- Similarly, the Rural Council participatory model could be scaled up to 1,000 Rural Councils in nearby Kordofan State. Scaling up the project model would help attract further international investment for climate projects.
- A cost-benefit analysis should be conducted to determine if cattle should be allowed reintroduction to grazing areas.
- The project facilities and equipment would need to be maintained until follow-up activities were also completed. This would also help to increase the time and ability to ensure the Sudanese government and local communities would continue with project practices and build off of project successes.

10. Quality of the Terminal Evaluation Report

A six point rating scale is used for each sub-criteria and overall rating of the terminal evaluation report (Highly Satisfactory to Highly Unsatisfactory)

Criteria	GEF EO comments	Rating
To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?	The TE attempts to quantify how much carbon has been sequestered directly and indirectly due to project activities, both by the project's end and over a 20-year period. However, due to the lack of baseline data, these numbers should be questioned, which the TE admits. Where quantifiable results exist, the authors provide them. A larger issue is that the PD did not originally define success or failure for many project goals according to quantifiable metrics. The TE consistently addresses project goals mentioned in the PD, even when a criteria for assessing these outcomes was not provided in the TE.	**S**
To what extent is the report internally consistent, the evidence presented complete and convincing, and ratings well substantiated?	The TE has a high degree of internal consistency. The authors systemically go through every part of the project (dune re-vegetation, windbreaks, etc.), explain the project's experience and show the results. As stated above, the total amount of carbon sequestered is calculated, but also difficult to assess properly due to a lack of baseline data. While the TE does not directly rate each project outcome, it does assess the quality of each initiatives' outcomes.	**S**
To what extent does the report properly assess project sustainability and/or project exit strategy?	The TE's “Sustainability” section on page 46 is short, but that assessment was based on detailed analysis written throughout the document. The TE notes that there was neither a plan nor funding to ensure project strategies continued passed the project end date.	**S**
To what extent are the lessons learned supported by the evidence presented and are they comprehensive?	The project lessons learned and recommendations appear adequate and evidence-based. However, the problems with the first phase of the project needed to be further elaborated upon because it is not always clear what exactly the RPA did to mismanage the project during the project's early years. The recommendations and lessons learned could have been expanded to include a greater understanding of what carbon sequestration techniques showed the greatest promise and what initiatives would help to increase resilience against drought.	**MS**
Does the report include the actual project costs (total and per activity) and actual co-financing used?	While the TE does include some cost numbers in the text body for various individual project undertakings, there is no comprehensive line item breakdown of costs, including estimated versus actual costs. Actual levels of co-finanicng are not provided either.	**U**
Assess the quality of the report’s evaluation of project M&E systems:	The TE goes into great detail regarding how the M&E system was inadequate at both the planning and execution levels.	**S**

Overall TE Rating	**S**

Overall TE rating: (0.3 * (5+5)) + (0.1 * (5+4+2+5)) = 3 + 1.6 = 4.6 = Satisfactory

11. Note any additional sources of information used in the preparation of the terminal evaluation report (excluding PIRs, TEs, and PADs).

Project Document (PD): Community Based Rangeland Rehabilitation for Carbon Sequestration and Biodiversity, August 1994

Evaluation of the Introduction of Guar in the Project Area: Case Study of Kajabi and Sararria Councils, Community Development Unit, October 1998

Project Performance and Evaluation Report, May 2000

April-June 2000 Quarterly Project Progress Report

July-September 1999 Quarterly Project Progress Report

Drought Contingency Plan, by Professor Mahdi Beshir and Dr El Hag Hassan Abu El Gassan, December 1998

The Assessment of Livestock Feed Balance and Carbon Sequestration within the Project Area (Year 1999)

Carbon Sequestration Assessment and Monitoring: Comments on the draft Final Report, by Mr. Ali Darag Ali

Baseline Report, by Mahmoud Mekki and Intisar Abdeslsadig, 1997

Estimation and Monitoring of Carbon Sequestration in Gireigikh Community Based Rangeland Rehabilitation Project, by the Institute of Environmental Studies, University of Khartoum, November 1999

Budget Revision “L”, February 2000

Budget Revision “D”, May 1999

Sudanese Swedish Association (SSA) Supported Villages Participatory Rapid Appraisal Survey Report, by Feth El Galeel Mohmed Ahmed, June 2000

TOR for Estimating and Monitoring Carbon Sequestrastion with the Project Area

The Case of Community Based Rangeland Rehabilitation Project for Carbon Sequestration in North Kordofan/Sudan

Proposed Workplan for 1997, by Omar Elgoni and Ali Darag, February 1997.