United Nations Environment Programme

Terminal Evaluation of the UNEP/GEF project entitled "Reducing Risks to the Sustainable Management of the North Western Sahara Aquifer System (NWSAS)"

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List of Acronyms and Abbreviations

ANRH	**National Water Resources Agency**
AWF	**African Water Facility**
DGRE	**Water Resources Branch**
FFEM	**French Global Environment Facility**
GEF	**Global Environment Facility**
GIS	**geographic information system**
GWP	**Global Water Programme**
IMIS	**integrated management information system (of the UN)**
IW	**International Waters (programme of GEF)**
LFA	**Logical Framework Analysis**
M & E	**monitoring and evaluation**
MSP	**medium sized project**
MTS	**medium term strategy**
NWSAS	**North West Sahara Aquifer System**
OP	**operational programme**
OSS	**Observatory for the Sahara and the Sahel**
PDF	**project development facility**
PIR	**Project Implementation Report**
PMU	**project management unit**
RoTI	**Review of Outcomes to Impacts**
ToC	**Theory of Change**
TOR	**terms of reference**
UNEP	**United Nations Environment Programme**
WACDEP	**Water, Climate and Development Programme for Africa**

Terminal Evaluation Report for the project entitled "Reducing Risks to the Sustainable Management of the North Western Sahara Aquifer System"

Project Identification Table

GEF project ID:	3645	**IMIS number:**	GFL/2328-2731-4A78
Focal Area(s):	International waters	**GEF OP #:9**	Integrated land and water multiple focal area operational programme.
GEF Strategic Priority/Objective:	IW-SO-2 (To Catalyze Transboundary Action Addressing Water Concerns) IW-SP-3 (Balancing overuse and conflicting uses of water resources in surface and groundwater basins that are transboundary in nature)	**GEF approval date:**	22 April 2009
UNEP approval date:	23 July 2009	**First Disbursement:**	09 October 2009
Actual start date:	February 2009 (planned)	**Planned duration:**	36 months
Intended completion date:	9 May 2012	**Actual completion date:**	31 March 2015
Project Type:	MSP	**GEF Allocation:**	US$ 960,000
PDF GEF cost:	US$ 32,734	**PDF co-financing*:**	US$ 46,000
Expected MSP/FSP Co-financing:	US$ 2,266,080	**Total Cost:**	US$ 3,304,814
Mid-term review/eval. (planned date):	n/a	**Terminal Evaluation (actual date):**	April-September 2015
Mid-term review/eval. (actual date):	n/a	**No. of revisions:**	2
Date of last Steering Committee meeting:	20-21 October 2014	**Date of last Revision:**	March 2013
Disbursement as of September 2014	$US 851,210	**Date of financial closure:**	March 2015
Date of Completion:	Expected March 2015	**Actual expenditures reported as of September 2014:**	$US 786,435
Total co-financing realized as of September 2014:	US$ 2,266,080	**Actual expenditures entered in IMIS as of September 2014**	$US 731,259
Leveraged financing:	US$ 223,000		

Executive Summary

1. This reports presents the results of the terminal evaluation of a project entitled "Reducing risks to the sustainable management of the North West Sahara Aquifer System" (NWSAS III), executed by the Sahara and Sahel Observatory between 2009 and 2014 with a UNEP-GEF budget of $960,000 and $2,270,000 in co-financing from the French GEF and the African Water Facility. This project was the latest stage in a series of activities and studies dating back to the 1970s. One million km2 of arid land overlays this aquifer system, where groundwater extraction, principally by the agricultural sector, now vastly exceeds the recharge rate. As a result, groundwater levels are falling, springs and underground streams are drying up, and water quality is deteriorating. Irrigated soils are becoming increasingly saline and waterlogged, while biodiversity is declining in the areas surrounding water sources. These trends are exacerbated by accelerated climate change.

2. The project's objective was to formulate and begin implementing actions promoting sustainable exploitation and management of groundwater resources in the NWSAS, with a focus on sustainable agricultural practices and environmental management. It was structured around five linked components: socio-economic surveys, pilot demonstration projects, development of data bases and GIS, support for a regional consultation mechanism, and project management. The evaluation analysed project reports and related documentation, carried out two weeks of stakeholder interviews in Tunisia and Algeria and administered a written questionnaire for Libyan stakeholders. Evaluation results are summarized below.

Evaluation parameter	Evaluation rating	Page in report
Strategic relevance	HS	18
Achievement of outputs	HS	19
Effectiveness: Attainment of project objectives and results, based on…	S	25
Achievement of direct outcomes	HS	
Achievement of project goal and planned objectives	S	
Likelihood of impact	L	
Sustainability, catalysis and replication, based on…	L	30
Financial sustainability	L	
Socio-political sustainability	L	
Sustainability of nstitutional framework	L	
Environmental sustainability	ML	
Catalytic role and replication	HS	
Efficiency	HS	34
Factors affecting project performance, based on…	S	34
Preparation and readiness	HS	
Project implementation and management	HS	
Stakeholders' participation and public awareness	S	
Country ownership and driven-ness	HS	
Financial planning and management	S	
UNEP supervision and backstopping	S	
Monitoring and evaluation	MU	
Overall Project Rating	**HS**	

3. The following conclusions, lessons and recommendations are discussed in detail in the final section of the report.

Conclusions

4. Without the project, the NWSAS would have continued moving towards an inevitable crash in irrigated agriculture in the basin, with little or no preparation to avoid this outcome.

5. This project was one important step in a long-term process in which much has been done and much is left to do, and which is complicated by a changing climate.

6. There is a demonstrated willingness to derive greater value from irrigation water among governments, and some farmers in the basin.

7. There is potential for dramatic improvements in irrigation technology that can be largely led by producers, supported by enhanced extension services.

8. The logical next step is to work with larger scale demonstration activities.

9. The imperative and opportunities to greatly increase the efficiency of agricultural water use in the basin are tempered by significant barriers.

10. Expanding the scale of the project's pilot demonstration results will require addressing significant environmental management challenges.

11. The current Libyan situation is not an impediment to immediate next steps, although political order there will be required for longer term success.

12. OSS and national partners are committed to updating shared databases while both project stakeholders and others are interested in information generated by the project.

13. Monitoring and evaluation can be done more effectively and efficiently.

14. OSS played a seminal role in promoting cooperation for improved water management in the basin during this project, and well before it. There is an ongoing role for intellectual leadership from OSS as well as their technical support to the partner countries in the NWSAS and their Consultation Mechanism.

Lessons

15. While climate change complicates water management challenges it can also help push needed change.

16. Behavioural improvements that require changes in long established government policies and traditional cultural attitudes take time and careful planning to achieve effectively.

17. Providing conclusive proof of irrational resource use and micro scale demonstrations of effective alternatives are necessary first steps but are not sufficient to induce broad policy change across a complex region such as the NWSAS basin.

18. Producers can play lead roles in local adoption of technological improvements when these changes are introduced through well adapted participatory approaches but they still need effective technical support.

19. Innovative ways can be found to carry out cross-border activities in difficult times.

Recommendations

20. The three countries sharing the NWSAS should launch a network of larger scale demonstration activities around the basin, linked to and supported by a system of regional support and information sharing similar to that of the NWSAS III project.

21. Farmers who want to derive greater value from irrigation water should be supported and protected by their governments and those working with them.

22. Extension services should be enhanced by the three countries in order to support a shift in technology led by producers.

23. Generalizing the results of the micro scale pilot demonstration projects and responding to the recommendations emerging from OSS's socio-economic-hydrologic models will require astute strategies to overcome significant cultural and political barriers to such moves.

24. The NWSAS partner organisations, led by a strengthened Consultation Mechanism and the OSS, should move quickly to share as much information as possible, as widely as possible, within the region and beyond.

25. The OSS should continue to provide intellectual leadership & technical support for improved irrigation water management in the NWSAS basin.

26. Future activities carried out by the NWSAS partners, with or without external support, should be complemented by robust, efficient and well financed national and local systems for monitoring and evaluating the socio-economic and environmental results of innovative approaches.

27. There is an interesting opportunity for UNEP-GEF to support future activities in the NWSAS basin.

I. Introduction

28. This reports presents the results of the terminal evaluation of the project entitled "Reducing risks to the sustainable management of the North West Sahara Aquifer System" (or "NWSAS III"). The project's objective was to formulate and begin implementing a set of actions addressing risks to the sustainable exploitation and management of groundwater resources in the NWSAS, with a focus on sustainable agricultural practices and environmental management. NWSAS III officially began in 2009 though it was slow to get off the ground. Originally scheduled to continue for three years, the project was extended twice and was instead completed in late 2014. It was implemented by the United Nations Environment Programme (UNEP), with funding from the Global Environment Fund (GEF)

and executed by the Sahara and Sahel Observatory (OSS) through a NWSAS Project Coordinating Unit (PCU) based in Tunis. By September 2014, almost 90% of its UNEP / GEF budget of $960,000 had been disbursed, complemented by co-financing from the French GEF and the African Water Facility (AWF) of roughly $2,270,000.

II. The Evaluation

29. The evaluation was carried out mostly in April and May 2015 by an independent consultant, Howard Macdonald Stewart, under the overall responsibility and management of UNEP's Evaluation Office and in consultation with the Task Manager of the International Waters Section of UNEP's Division for Environmental Policy Implementation.

30. The evaluation sought first, to provide evidence of results to meet accountability requirements, and second, to promote learning, feedback, and knowledge sharing among national, regional and international stakeholders. To ensure the evaluation promoted experiential learning, it focused not simply on determining *what* results the project had achieved, but also *why* and *how* these results were achieved. The evaluator also aimed to gauge the difference between what has happened as a result of the project and what would have happened in its absence.

31. The evaluation was as participatory as possible, informing and consulting key stakeholders throughout the evaluation process. Travel to the project's pilot sites and to Libya was not possible however, due to security concerns. Key stakeholders from the pilot sites in Tunisia and Algeria were therefore interviewed either by telephone or in person in Algiers, while key project participants from Libya completed an evaluation questionnaire.

32. Analysis of project and related documentation as well as interviews and a questionnaire were used to determine actual project results against expected outputs, outcomes and impacts. The project's performance was assessed in terms of its relevance, effectiveness and efficiency, as well as its actual and potential outcomes and impacts, and their sustainability. The evaluation also assessed the project's results in catalysing positive change and stimulating replication and in scaling up of their lessons and good practices. Finally, a number of processes affecting the attainment of project results were examined -- preparation and readiness; implementation approach and management; stakeholder participation and public awareness; the three countries' ownership of and influence over project activities and results; project financing; UNEP's supervision and backstopping; and project monitoring and evaluation systems -- as was the project's complementarity with UNEP strategies and programmes. All evaluation findings and judgements are based on concrete evidence and analysis that are referred to in this report. Evaluation information gathered was cross checked with to the extent possible, while the analysis behind evaluative judgements is explained.

III. The Project

A. Context

33. This project was the latest stage in a series of activities and studies dating back to the 1970s and focused on water management challenges in the North Western Sahara Aquifer System (NWSAS). The NWSAS covers a territory of over 1 million km^2, of which 700,000 are in Algeria, 80,000 in Tunisia and 250,000 in Libya. The NWSAS constitutes the only source of water in a vast tract of desert and adjacent arid steppe and this aquifer system is under serious threat. Water is extracted from the system, in different ways, at something over 8,800 places – at least 6,500 in Algeria, 1,200 in Tunisia, 1,100 in Libya.

34. Water abstraction from the aquifer by all users, especially the agricultural sector, has risen rapidly in recent decades. The area of lands under irrigation in the basin increased from 60,000 ha to 250,000 ha in the second half of the 20^{th} century and continues to rise. Exploitation of the aquifer waters has been exceeding recharge rates at an accelerating pace since the 1980s. Withdrawals had reached an estimated 2.2 billion m^3 / year (of which 1.33 billion in Algeria, 0.55 in Tunisia and 0.33 in Libya) by the time the current NWSAS project was launched and are estimated to be at least 20% more than that today. This extraction compares with an estimated recharge rate of only one billion m^3 / year. Rapidly growing demand pressure on this shared water resource has increased the risks of interstate competition and tension, while a falling water table leads to increased energy costs incurred for pumping it to the surface. Growing pressure on the aquifer threatens the sustainability of socio-economic development, particularly agricultural development, in the broad steppe region along the northern border of the Sahara desert and the oases within in. This threat to the viability of irrigated agriculture underlines the urgent need for more efficient use of this scarce resource.

35. Environmental impacts of the degradation of the NWSAS include:

    - Aquifers are being drawn down leading to widespread drying up of springs and underground streams and degradation of water quality.

    - Irrigated soils are becoming increasingly saline and waterlogged.

    - Biodiversity is diminishing in the areas surrounding water sources.

    - The hydrological and geo-chemical functions of wetlands are failing.

36. These trends have been intensifying and are likely to be further exacerbated by accelerated climate change entailing reduced precipitation and increased rates of evapotranspiration across the region.

37. Earlier research has enhanced awareness among decision makers in the three countries, first of the extent of the socio-economic and environmental challenges facing future development of their respective portions of the NWSAS region and, second, of the need for a co-ordinated and sustainable approach to water resource management there. The OSS launched the first phase of the current NWSAS project in 1999, building on thirty years of applied research already carried out in the basin. Earlier phases of the project provided an updated evaluation of the basin's water resources, outlined the socio-economic contexts of this water use and forecast the likely impacts of predicted future levels of water use in the three countries.

38. A tripartite international Consultation Mechanism was established in 2008 and tasked with providing guidance towards the definition of a common vision and the design of the tools needed to ensure effective joint management of the shared water resource. Priority was given to ensuring the food security and well-being of local populations.

39. The third phase of the NWSAS project, just ended, was officially launched in 2009. It has aimed, *inter alia*, to enhance understanding of the underlying socio-economic logic of current modes of water use. This was needed in order to identify ways to move toward more sustainable management of the vast shared aquifers, while optimising agricultural water use, improving local living conditions, and safeguarding other dimensions of the bio-physical environment, especially irrigated soils and biological diversity. This process of enhancing understanding of current, unsustainable water use practices, together with pilot sites to demonstrate a variety of improved approaches to water use, constituted the two principal axes of this project.

40. The challenges facing agricultural water users in the NSWAS are defined by combinations of bio-physical, socio-economic and cultural conditions in which agriculture is carried out there. These are predictably diverse across this vast region. They include, for example, a wide range in the depth from which water is drawn (and therefore the energy required to raise it), the quality (especially salinity) of this water and of the soils being irrigated, the quantity of irrigation water available, the area of land actually and potentially available for exploitation, the nature of existing agricultural techniques, actual and potential markets for existing and potential alternative crops.

41. The designers of the pilot demonstration projects carried out during NWSAS III estimated there are some thirty to forty distinct "*problématiques*" related to the relations between farmers practicing irrigated agriculture in the NSWAS and their water resources. What most of these challenges have in common is that they have arisen in situations where deeply rooted and mostly small and medium scale producers practice locally adapted and often ancient systems of agricultural water use that have grown increasingly inappropriate as rates of water use have grown in recent decades, disrupting the balance between people and their water resource. From these diverse scenarios, the project selected six that were judged to be of the highest priority by local and national partners. Much of the activity of this phase of the NWSAS programme was much more geographically focused -- on the six pilot sites -- than the previous two projects which had carried out their activities across the entire basin.

42. ***Institutional and political context and challenges:*** The key governmental institutions involved in the project were the water, agricultural and environmental authorities of the three countries at central, regional and local government levels. These sectors are relatively well organised (or in the case of Libya, were until recently), and have substantial human resources, though some personnel required training to face new challenges and work with new technologies. The project's non-government partners – local water user associations and NGOs – were more diverse, varying considerably between the three countries and within different zones in the same country.

43. Project execution faced unanticipated challenges in Tunisia and Libya due to political upheaval and associated violence that swept across parts of the Maghreb, starting in late

2010. The principal results of this disruption were a delay of over two years in the overall project implementation schedule and displacement of some pilot activities from Libya to Tunisia.

44. A related challenge was the political, socio-economic and cultural asymmetry between the three participating countries. This was a greater challenge during this phase than in the past, not just because of the political effervescence mentioned already, but because of the dynamic diversity of relations between state and non-state actors, political and cultural imperatives and constraints, socio-economic challenges and opportunities that also exists within the NSWAS regions of each country.

B. Objective and components

45. The project's objective was to formulate and begin implementing a set of actions addressing risks to the sustainable exploitation and management of groundwater resources in the NWSAS, with a focus on sustainable agricultural practices and environmental management. These actions were to be implemented under the direction of a regional Consultation Mechanism supported by the OSS and based in Tunis. The project's approach was participatory, involving local, regional and national level stakeholders and decision-makers. It was structured around five linked components:

- exhaustive, representative socio-economic surveys,
- six pilot demonstration projects,
- ongoing development of data bases and GIS,
- support for a regional Consultation mechanism, and
- a project management structure.

C. Target groups / areas

46. The project's "target groups" were:

- the central Water Authorities of the three countries;
- the national and regional bodies in charge of agriculture and the environment in each of the three countries;
- the regional bodies in charge of water management and the development irrigated areas in the three countries;
- local associations and other organizations of irrigation water users;
- local farming populations at the pilot demonstration sites.

47. In Algeria, these included: le Ministère des Ressources en Eau, le Ministère de l'Équipement et de l'Aménagement du Territoire, National Agency for Water Resources, le Ministère de l'Agriculture, le Ministère de l'Intérieur et des collectivités locales, Direction Régionale Sud (ANRH Sud), Direction Régionale chargée de l'irrigation et du drainage, L'office national chargé de l'irrigation et du drainage (ONID), Direction de l'Hydraulique de la Wilaya (DHW), Direction des services de l'Agriculture de la Wilaya (DSA), Direction de l'Environnement de la Wilaya (DEW), Water Users Associations and NGOs operating in the field of the environment.

48. In Tunisia: le Ministère de l'Agriculture et des Ressources Hydrauliques, le Ministère de l'Environnement et du Développement Durable, Directorat Général des Ressources en Eau (DGRE), le Ministère de l'Intérieur et des Collectivités Locales, CRDA's (Commissariats Régionaux du Développement Agricole, Direction Régionale du Ministère de l'Environnement et du Développement Durable, conseils régionaux des Gouvernorats, associations d'intérêt collectif, Groupement du Développement Agricole, and various NGOs operating in the field of the environment.

49. And in Libya: General Water Authority (GWA), National Water Resources Committee, National Agriculture Committee, National Environment Committee, local agriculture and water committees, and water users associations.

50. The project's extensive socio-economic surveys were conducted across the entire NWSAS region in the three countries. The pilot demonstrations were carried out in six discrete locations, as follows: Réggane and Oued Righ in Algeria; Essouani and Taouergha in Libya (the pilot at the latter site was later shifted to Gabès in southeast Tunisia); Kebili and Médenine in Tunisia.

D. Milestones / key dates in project design and implementation

51. ***Project start date:*** Planned: February 2009; Actual: June 2010

52. ***Mid-term evaluation (MTE) date:*** The Project Document called for a MTE to be conducted "between the 12th and 15st month of execution of the project, irrespective of its level of implementation and disbursement." The Inception Report called for one either between the 12th and 15th months or between the 18th and 21st month. In the event, as MTE's were not required for GEF Medium Sized Projects, it was agreed to reallocate funds from the MTE to the terminal evaluation, which had been under-budgeted. .

53. ***Project completion date:*** Planned: January 2012; Actual: December 2015

E. Implementation arrangements

54. UNEP acted as the UN implementing agency for the project, with financing from the GEF's International Waters programme. The project was executed by the Observatory for the Sahara and Sahel (OSS), an international organization based in Tunis. Project execution was overseen by a Project Steering Committee, consisting of representatives from UNEP, the French GEF, the AWF, the OSS, and the water management authorities of the three

countries. The Steering Committee's mandate was to regularly review project implementation, particularly:

- Progress in implementation of the various project components
- The monitoring and evaluation plan of the project
- The quality of outputs produced
- The sustainability of the project outcomes; and
- The replicability of actions recommended by the projects.

55. The Steering Committee was also expected to monitor

- Stakeholder buy-in to the project during implementation (by review of the Monitoring and Evaluation survey reports)
- Whether results reach intended targets; and
- The risks of failure.

F. Project financing

Table 1 - Original and actual project budgets, by component and funding source

Project Components	GEF Financing original estimate / actual disbursements		Actual Co-financing*		Total ($)
	($)	%	($)	%	
1. Assessment of the socio-economic and environmental impacts of water extraction and use, and development of sector action programmes	242,900 227,300	44 43	307,200	56 57	550,100 534,500
2. Demonstration of innovative approaches to address risks associated with the NWSAS, addressing efficiency of water management and irrigation and drainage	419,900 309,400	43 35	564,800	57 65	984,700 874,200
3. Development of Information System (GIS), mapping and remote sensing	71,675 99,900	7 10	902,880	93 90	974,555 1,002,780
4. Consultation Mechanism	129,525 159,300	34 39	248,800	66 61	378,325 408,100
5. Project management	96.000 137,100	37 39	242,400	63 61	338,400 379,500
6. Evaluation & monitoring	-- 27,000				-- 27,000
Total project costs	960,000 960,000	42 42	2,266,080	58 58	3,226,080 3,226,080

Table 2 - Original estimated and actual project co-financing, by source and type of funding

Name of Co-financier (source)	Classification	Type	Contribution	%*
Government contribution*	National govts	in-kind	$539,200	24
French GEF	bilateral agency	Grant	800,000	36
African Water Facility of the AfDB	multilateral agency	Grant	780,480	34
OSS (Sahara and Sahel Observatory)*	intergovernmental Organisation	in-kind	146,400	6
Total Co-financing			**$2,266,080**	**100**

***** - Actual in-kind contributions from national governments and the OSS have exceeded original estimates, as a result of the extension of the project implementation period. Estimates of the value of this additional support were not available to the evaluation.

57. The project agreement between the OSS and the French GEF was signed in November 2008; the agreement with UNEP GEF/UNEP in August 2009. The AWF contribution, known also as "the GeoAquifer Project" began in 2008 and ended in 2011. This AWF funding was earmarked:

- to develop the land cover maps as well as enhancing reliability of data related to ground water abstractions;
- to strengthen partners' capacities in the field of GIS; and

- to implement a virtual globe and a cartographic server.

G. Project partners

58. The key project partners were:

- The OSS as a project executing organisation;
- UNEP as the GEF Implementing Agency;
- French GEF (FFEM), AWF (African Water Facility) / AfDB (African Development Bank) as external financing partners;
- The governments of Algeria, Libya and Tunisia, as contracting and project owning authorities, as well as contributors, in kind, to project financing.

H. Changes in design during implementation

59. The principal changes in project design were:

- The implementation schedule was extended by almost two and a half years.
- One of the pilot projects planned to be executed in Libya was executed instead in nearby Gabès, Tunisia.
- The scope of socio-economic surveys was broadened to capture additional dimensions of the behaviour of agricultural water users.

I. Theory of Change of the project

60. A reconstructed Theory of Change (ToC, depicted in Figure 1 below) was prepared based on project documentation and reviewed with project staff during the evaluation. This diagram depicts the logical sequence of intended project results, from its immediate outputs and their intended outcomes to intended longer-term impacts.

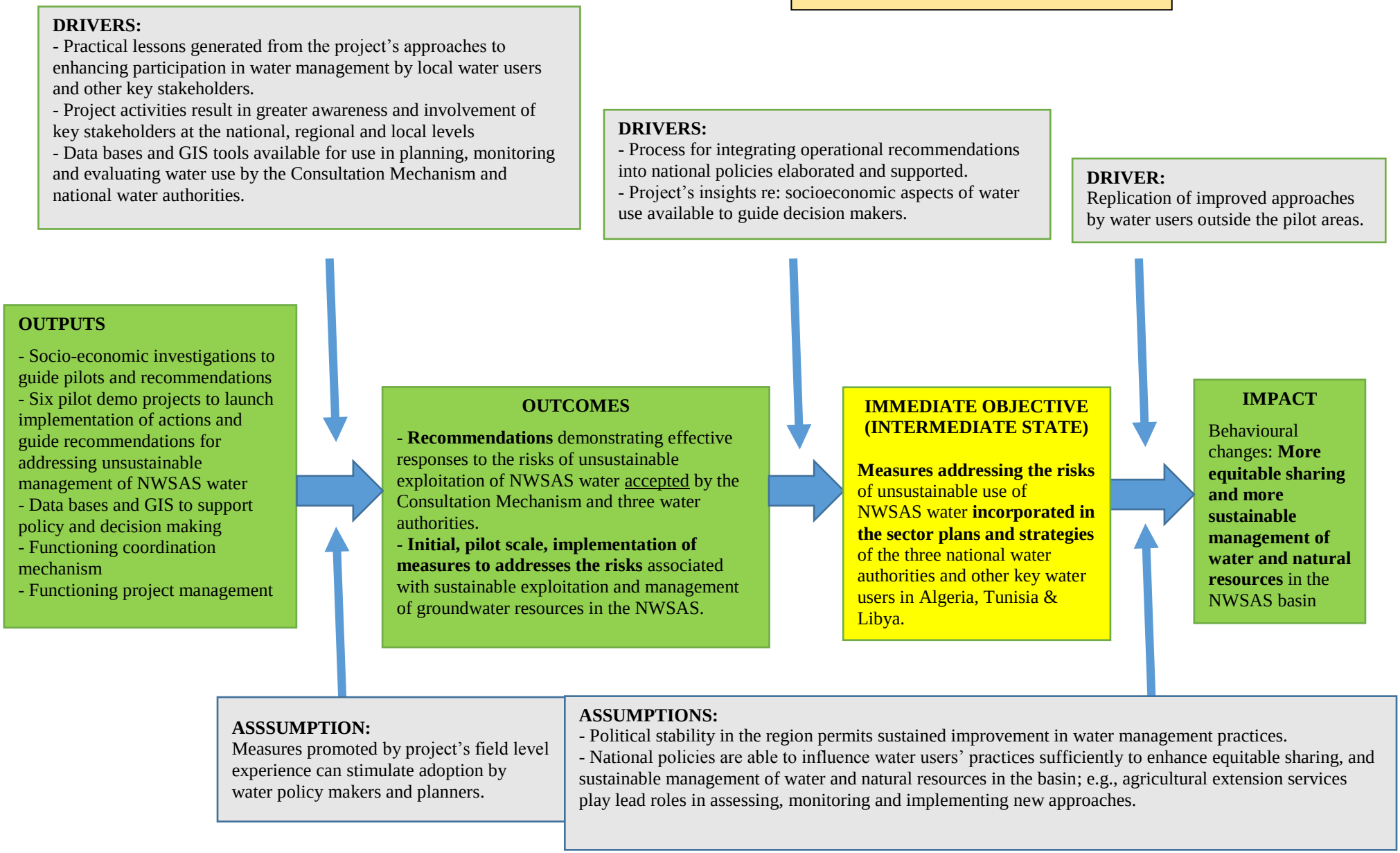
61. Fourteen detailed outputs or activities (sometimes described in project documentation as "outcomes") are expected to contribute to the achievement of five core outputs (sometimes described as "components"):

- comprehensive, representative socio-economic investigations,
- six pilot demonstration projects,
- data bases and GIS are enhanced and utilised ,
- a mechanism for coordinated action by partners is functioning, and
- a project management and coordination structure is functioning.

62. The reconstructed ToC starts with these five outputs that are expected to result in the project's outcomes of "*recommendations demonstrating effective responses to the risks of unsustainable exploitation of NWSAS water that are accepted by the Consultation Mechanism and three water authorities"* and "*initial pilot implementation of measures to addresses the risks associated with sustainable exploitation and management of groundwater resources in the NWSAS."* These outcomes are in turn expected to contribute to achieving an objective of "*measures addressing the risks of unsustainable use of NWSAS water incorporated in the sector plans and strategies of the three national water authorities and other key water users in Algeria, Tunisia & Libya."* This is intended to contribute to achieving a desired impact of behavioural changes in environmental management, specifically *"more equitable sharing and more sustainable management of water and natural resources in the basin*."

63. The ToC further identifies a series of external factors likely to influence the capacity of the project's various participants and stakeholders to progress beyond their targeted outcomes and immediate objective and progress towards achievement of their longer-term goals. These external factors are described as either "drivers" – factors over which the project's participants have some control – or "assumptions" – factors which are beyond their control. The extent to which these factors have influenced the project's ability to move towards its longer term goals were examined during the evaluation interviews and document review and in a subsequent "Review of Outcomes to Impacts" (ROtI) summarized in the following section.

Figure 1 – "Reducing Risks to Sustainable Management of the NWSAS" -- Reconstructed Theory of Change



IV. Evaluation Findings

64. This chapter provides factual evidence relevant to the questions raised in the evaluation terms of reference, as well as analysis and interpretation of this evidence. Ratings are provided after the assessment of each evaluation criterion and summarised in the conclusions.

A. Strategic relevance

65. ***Regional priorities:*** The activities of the NWSAS III project were a response to the message delivered by OSS to regional leaders earlier in the century: Growing overexploitation of these shared water resources could only lead to disaster, eventually rendering irrigated agriculture impossible over a vast stretch of arid southern territories in each country. An earlier engagement by Libya's leader to create a "river in the desert" had helped to stimulate public concern about finite water resources in neighbouring countries (though this project was never implemented and would not have actually drawn on NWSAS waters). The NWSAS III project was designed to respond to the complex challenges facing water users' in the basin by testing a diversity of solutions aimed at the most pressing and widespread problems and by examining in detail the complex relationship between farmers and their water resource.

66. Senior national and regional government officials in Tunisia confirmed the ongoing, growing relevance of project activities in the much changed and rapidly evolving context of 2015. Approaches adopted in pilots, such as the use of solar power for drainage and desalinisation of soils in arid zones and experiments with blends of saline and desalinated waters with different crops, all support current priorities of stimulating a more intensive and efficient oasis agriculture able to create jobs, reduce food imports and diversify agricultural exports.

67. Algerian officials at national and regional levels similarly confirmed the ongoing strategic (and agro-ecological) relevance of the project's results. One described the NWASA III results as contributing to the "first phase of awareness" in a national move towards a more open and efficient agricultural sector. Under its latest five year plan, launched in 2015, the government in Algiers hopes to reduce its very high level of dependence on hydro-carbon exports in part through a rapid expansion in irrigated agricultural production. A significant portion of this would be in the arid and semi-arid south. Over a quarter of the country's potato crop, for example, is now produced in the desert of El Oued. Already project activities in this region have stimulated the acceleration of a stalled national programme of support for drainage of waterlogged soils.

68. Feedback from Libyan government partners also confirmed the growing relevance of the project to their country's water management needs, though they conceded that any government commitment remained "theoretical," until that country's political situation stabilizes.

69. **UNEP's mandate and policies:** The project contributed to achieving the sub-programme on "Environmental Governance [wherein] national development processes and UN Common Country Programming processes increasingly mainstream environmental sustainability in the implementation of their work programmes," identified in UNEP's 2010-11 Programme of Work. The project also addressed several of the cross-cutting priorities of UNEP's Medium Term Strategy 2010-2013, helping UNDAFs to more effectively address issues associated with climate change, disasters and conflicts, to more effectively manage terrestrial, freshwater and marine ecosystems and to improve environmental governance.

70. **GEF's International Waters priorities:** The project contributed to two of the GEF's strategic objectives for International Waters, first by catalysing transboundary action to address shared water management concerns and, second, by helping the three countries to address problems and conflicts related to the overuse of shared water resources in a transboundary basin. The project shared experiences and learning with other similar projects financed by the GEF's International Waters programmes across North and West Africa. The OSS described the NWSAS as their "*projet phare,"* guiding their approaches in similar, more recently initiated programmes of support to other shared groundwater basins, such as those in the Iullemeden, and Taoudeni / Tanzrouft Aquifers in the Niger River basin. The project's experience also contributed to global learning through participation in the groundwater group of GEF's global IW-LEARN project.

71. On a broader scale the project supported the participating countries' commitments to the Rio Conventions on climate change, biodiversity and desertification, albeit modestly. It demonstrated ways to reduce pressure on natural resources and ecosystems through increased productivity of local agriculture. In the process, it supported moves towards rehabilitation of the biological diversity of oases zones, steppes, and wetlands.It also helped to anticipate the risks associated with increased pressures on limited water resource, and to identify suitable alternatives to unsustainable practices.

72. The project's objective -- formulating and beginning to implement a set of actions addressing risks to the sustainable exploitation and management of groundwater resources in the NWSAS, with a strong focus on sustainable agricultural and environmental management – was realistic. As discussed elsewhere in the report, the previous activities of the OSS and particularly the first two phases of the NWSAS programme, all served to create both a wealth of baseline hydro-geologic information and a tradition of regional cooperation that the NWSAS III project was able to build upon.

73. **Rating for Strategic Relevance: Highly Satisfactory**

B. Achievement of outputs

74. The core outputs (described as "components" in project planning documents) planned for the NWSAS III project were (with the portion of the original / actual UNEP GEF budget assigned to this output indicated in brackets): 1) a series of six pilot demonstration projects (44 % / 32%), 2) a socio-economic survey of agricultural water users (25 % / 24%) , 3) improvements to shared data bases, including geographic information systems or GIS (7 % / 10%), 4) support to a regional Consultation Mechanism or "mécanisme de concertation" (13

% / 17%), and 5) project management (10 % / 14%). Review of project documentation and consultation with a range of stakeholders suggests that – with some inevitable caveats - these outputs have been of mostly high quality and at least sufficient quantity, as well as being of either immediately utility or being likely to be of value to users in the short term future. The timeliness of their delivery was less in line with original expectations, in part because of political events that disrupted and delayed project activities, but also because the socio economic survey and the model developed using survey data proved considerably more complex and time consuming than originally estimated. There are a number of reasons for the project's relative success in achieving its planned short terms results, despite a sometimes very challenging political context. A number of these are examined in section F below. Generally speaking, the project's performance appears mostly attributable to its ability to take advantage of, and build upon, earlier accomplishments. Many of the key individuals working on project activities at OSS, and in the three participating governments, had worked in previous phases of the project. This ensured they were familiar not only with the technical and other challenges facing agricultural water management in the NWSAS region, but were also familiar with each other. They were able to build open over a decade of regional collaboration and sharing of information related to shared challenges. This tradition of collaboration, for example, facilitated their response to the deepening political and security crisis in Libya in the latter years of the project. When the pilot project planned for Taouergha in Libya ran into the difficulty, they were able to shift to an appropriate pilot site across the border to Gabès, Tunisia that remained accessible to Libyan participants.

75. The five outputs were complementary to one another to varying degree, as well as to other ongoing work of the OSS. The socio-economic surveys in particular, complemented the pilot demonstration projects, though they were carried out independently of one another. The regions where the surveys were carried out encompassed all six pilot sites and, most importantly, the survey results corroborated the pilots' findings regarding the scope for more efficient agricultural water use. Together, the results of the pilot demonstration sites and socio-economic survey offer regional decision makers a rich, nuanced understanding of their challenges and options.

76. ***Pilot demonstration projects*:** A project report from late 2014 reveals the extent of results by the end of the project (and is an example of their sometimes mediocre English language translation): "All planned pilots were implemented…Four of them are in full operation with their hydro-agricultural and agricultural components [while]… Two lagging... Reggane pilot in Algeria, whose central solar pump was acquired in the second half, with installation scheduled for 2014… [and] the Kebili pilot in Tunisia is still without water following the collapse of its drilling. A new drilling is underway to restore the water supply to the pilot (Fall 2014) … The four pilots fully realized have led to remarkable technical, economic and environmental performance that have attracted the interest of visitors and decision makers at all levels… [and] generated strong demand from croppers and planners to replicate it in other groups of farms that may constitute pilots of an agricultural production system…The final report and dissemination materials have been developed… Recommendations [from the pilot demonstration projects] were formulated based on the following elements:

- "An accurate definition of the objectives of these recommendations

- "Targeting players recipients of these recommendations
- "Intervention area targeted by the recommendations
- "Capitalization of results."

77. These pilots had been designed to address four key challenges facing arid land agriculture in the three countries: shortage and salinisation of irrigation water, inefficiency of irrigation systems, and declining soil quality (often associated with irrigation practices). Each pilot demonstration project was required to meet the following criteria:

- water management infrastructure that will be financially and economically viable;
- improved productivity of irrigation water;
- increased income for farmers; and
- ensure protection of the environment.

78. All the pilots were introduced and implemented following participatory approaches that involved local government and non-government stakeholders in the management and use of groundwater. The farmers themselves were involved from the design to the completion of each pilot, with the goals of making these producers / water users the principal actors in these pilots and convincing them that they could produce better results using less water. The approach adopted in the pilots, styled "*pédagogie de proximité"* (which might be translated as "training by association") also aimed to ensure that these farmers involved in the pilots played active roles in demonstrating their results to others in their communities.

79. The pilots adapted this participatory approach to locally test already proven technologies. This allowed them to demonstrate viable solutions to local problems, including: the use of solar energy (photovoltaic stations) for pumping of irrigation water or drainage waters, the use of desalinization technology to render highly saline water useable for irrigation, drainage infrastructure to overcome waterlogging and reduce salt levels in agricultural soils, more efficient use of irrigation waters to support agricultural intensification and crop diversification, and crop diversification to access to new markets.

80. The pilot demonstrations were representative of major challenges (though certainly not all) facing farmers in the basin. It wasn't possible to devise simple and effective pilots that captured all the many challenges facing oasis agriculture in the NWSAS region (one interlocutor estimated there were perhaps thirty or forty). Instead the project identified, together with national and regional stakeholders, those of greatest priority in each country and worked with people who appeared the most open to engage in this kind of pilot. National and regional government representatives confirmed that the pilot results in general had been very positive and convincing in their demonstrations of how farmers could use introduced technologies and crops to increase their yields and incomes, while making more efficient use of irrigation water. From the perspective of local and regional government partners working with them, the project's pedagogically astute extension approach helped to

promote learning and adaptation among local farmers, , and to increase local awareness of these improved approaches.

81. ***Socio-economic surveys:*** An ambitious programme of socio-economic surveys aimed to better understand the operations of arid land farmers and particularly their behaviours in relation to irrigation water. The survey sought to understand a number of key factors including:

    - how water users combine water with other inputs such as labour, fertilisers, equipment;
    - how water users adapt their behavior to growing water shortages and other environmental challenges, including through adoption of new irrigation technologies and crops;
    - how irrigation water pricing could encourage water conservation;
    - the short and medium term impacts of salinity on production;
    - the actual returns on certain widely grown crops, such as cereals and fodder;
    - possible inefficiencies related to prevailing modes of production and irrigation water use; and
    - how water supplies available at the farm level could be improved.

82. The survey results were expected to provide a solid quantitative basis for future recommendations to decision makers in the three countries.

83. A stratified random sample of 3,000 farmers was surveyed in ten separate regions (Gabès, Kébili, Tozeur, Médenine and Tataouine in Tunisia; Biskra, El Oued, Adrar and Oued el Righ in Algeria; Essouani in Libya). Two main rounds of surveys involved the administration of a total of 3,700 questionnaires – 2,100 in Algeria, 1,100 in Tunisia and 500 in Libya. A smaller subsequent round of surveys contacted a sub-set of the original sample population to gather supplementary information needed for the elaboration of a more powerful predictive model than originally foreseen. Surveys were mostly administered by staff of government statistical departments in Algeria and Libya; in Tunisia the project engaged a number of former government staff who had recently lost their jobs as a result of the political upheaval. In all cases, the surveyors received additional training from the project before beginning the surveys.

84. The initial survey results provided valuable information regarding: the potential role of livestock in improving the productivity of irrigated agriculture in the NWSAS resources, the potentially positive impact on farm productivity of a higher water cost to farmers, the impact of farm size in the efficiency of water use, and certain distinctive national traits in farm water use.

85. Combining the socio-economic data from the original survey with supplementary survey information and with hydrologic data already available at OSS allowed the project to

develop a "hydro-economic model" that permits decision makers to envision the hydrologic as well as socio-economic outcomes of different approaches to agricultural development in the NWSAS basin. With these data they can identify the best approaches to optimizing water use at the farm level by achieving the best economic returns per unit of water input.

86. Much of the value of the survey results lies in their detailing of how farmers react to higher water prices. They found a very high level of "water price elasticity;" farmers were prepared to pay relatively high prices for water if the supply was reliable, coming at the times and in the quantities they required. At the same time, they found that the more farmers paid for their water, the more efficiently they used it and the better economic return they achieved per unit of water used. Their results suggested that the kinds of capital intensive improvements introduced in the pilot projects were likely to be quite feasible, to the extent they are able to ensure arid land farmers with the right combination of quantity and quality in their irrigation water supply.

87. Feedback from senior government partners in the three countries confirmed that they found the results of the socio-economic survey potentially highly valuable. Tunisia is the most advanced of the three in moving towards more effective use of water pricing to improve efficiency of irrigation. While water pricing remains a more sensitive issue in Algeria, the survey and complementary pilot demonstrations are seen as valuable for raising awareness of the need for more efficient use of scarce water and the role of economic instruments in increasing efficiency. Feedback from Libya confirms a theoretical embrace of these messages, in a context where little practical water governance is possible at the regional and national levels for the time being.

88. ***Data bases:*** After a slow start, the project undertook to enhance the shared NWSAS database and information management system through:

- integration of new socio-economic data, and a database management system able to manage spatial information;
- updating of the content of the hydrologic database with newly acquired data and develop a system for regular data updating;
- upgrading of the « SAGESSE » interface system, to facilitate data management and the development of water resource management scenarios / simulations; and
- setting up a common website for the SASS III project and the Consultation Mechanism.

89. OSS information specialists are now satisfied that they have an updated data base, detailing over 16,000 water sources within the NWSAS basin, of which around 9,000 are in use. They can now predict what will happen to the shared water resource if governments follow a given strategy of water use. Some government officials expressed a high level of satisfaction with the updated, corrected and far more comprehensive data base and the training they have received related to these information resources, while others expressed lingering concerns about the reliability and accessibility of these data. This variation probably reflects the diversity of current situations among the three countries and their respective water

management bodies. There was a more general consensus on the value of the incorporation of socio-economic data within the existing OSS hydrologic data base.

90. A proposed common website, shared by the SASS III project and the Consultation Mechanism, does not yet appear to be functioning, though a certain amount of information about and from both SASS III and the Consultation Mechanism is available at the OSS website.

91. ***Consultation Mechanism*:** The relationship between the Consultation Mechanism and the NWSAS III project appears more ambiguous in reality than is implied in the project planning documents. Meetings of members of the Consultation Mechanism -- organised with OSS support and with additional representation from UNEP, AWF, FFEM and other external partners -- served as the NWSAS Steering Committee meetings where project results were reviewed. Other key activities of the Consultation Mechanism in relation to the project, implemented with OSS support, were:

    - collection and processing of data,
    - monitoring common networks of groundwater water measurement,
    - updating of the member state's water abstraction data,
    - preparation of new simulations, and
    - contribution to the hydro-economic model.

92. The secretariat of the Consultation Mechanism (CM) is staffed by a single officer at the moment. Assigned for a two year period, this position rotates between the three countries but the post remains at OSS headquarters in Tunis. There seems to be some confusion as to whether the project supports the mechanism or the mechanism supports the project. For much of the project, from 2010 until 2012, the coordinator of the CM and the project manager were the same person, a measure which helped reduce expenditures. Not surprisingly, the positions appear to support each other, though there is no clear indication what the 13% of project budget originally assigned for 'support to the Consultation Mechanism' has been used for. The position at OSS is financed jointly by the three participating countries, although Libya's contribution has stopped for the time being.

93. While the mechanism is rightly seen as a powerful symbol of the commitment to tripartite cooperation in the NWSAS, some expressed concern about the need to strengthen the legal basis of the mechanism and to expand its function. The mechanism was established in 2008 with the signature of a "*procès verbal*" (minutes) of a meeting between the water ministries of the three countries. A more formal protocol, such as has been signed in other shared water basins, would signal a stronger commitment and the current mechanism office hopes to see such a document prepared for signature in the coming year. A more robust mechanism could play a more prominent role in information sharing and promotion of improved water management.

94. ***Project management*:** OSS managed the project with the full time support of a project coordinator, and part time support from their water programme coordinator, GIS expert, remote sensing expert, a project assistant, an accountant and an accounts clerk. Together, they ensured the effective delivery of the other four outputs discussed above, as well as coordinating these activities with other programmes of the OSS, with the office of the Consultation Mechanism, the national and regional governments of the partner countries and the stakeholders in the pilot demonstration projects. The project's accounts are audited annually and appear to be in order

95. **Rating for Achievement of Outputs: Highly Satisfactory**

C. Effectiveness: Attainment of project objectives and results

96. This third phase of the NWSAS programme, drawing on the results of its extensive socio-economic surveys and pilot demonstration projects, was expected to formulate practical and clearly quantified recommendations that would enable the tri-partite Consultation Mechanism created in 2008 to implement appropriate strategies. These strategies in turn were expected to reduce the pressure on the shared water resource that is essential for ongoing human activity throughout the basin.

97. The project was expected to have positive repercussions on different levels. The three participating countries have agricultural development programmes in their respective arid and semi-arid areas that aim to stabilize and support local populations in their respective areas, while conserving local ecosystems (including agro-ecosystems), local cultures and knowledge related to adaptation to particularly difficult bio-physical environments. The project aimed to contribute to these local efforts and national programmes, particularly through pilot demonstration projects involving local water user groups. Unlike preceding initiatives led by OSS in the NWSAS, the project adopted a participatory approach involving water users extensively in project implementation. Its outreach consisted of training local decision makers, i.e., farmers and extensions agents. Despite its modest financial resources, the project also sought to contribute to safeguarding the global environment through its promotion of sustainable water use, and protection of invaluable world heritage, in one of the world's most vulnerable regions

98. The Theory of Change (ToC) model (section III.I above) prepared for the project integrated its various planned results into a single logical sequence that encompasses its main activities and expectations. The sequence of expected sequence of results assessed by the evaluation, following the prescribed method of "Review of Outcome towards Impacts" was as follows:

99. Two **direct outcomes:** "*Recommendations demonstrating effective responses to the risks of unsustainable exploitation of NWSAS water that are accepted by the Consultation Mechanism and three water authorities"* and "*Initial implementation of measures to address the risks associated with sustainable exploitation and management of groundwater resources in the NWSAS."* …contributing to a **project objective** of "*Measures addressing the risks of unsustainable use of NWSAS water incorporated in the sector plans and strategies of the three national water authorities and other key water users in Algeria, Tunisia & Libya."* This in turn was expected to contribute to a **longer-term impact** of**:**

"More equitable sharing and more sustainable management of water and natural resources in the basin.

Achievement of direct outcomes

100. ***Outcome 1: "Recommendations demonstrating effective responses to the risks of unsustainable exploitation of NWSAS water that are accepted by the Consultation Mechanism and three water authorities"*** The recommendations emerging from the pilots and socio-economic studies that have been tabled in the project Steering Committee comprised, *inter alia,* of the Co-ordination Mechanism and the technical heads of the three water authorities, where they were accepted. As discussed below, feedback to the evaluation from different levels of government confirmed the generally very positive response to these recommendations, though they will not be immediately translated into national policies.

101. ***Outcome 2: "Initial implementation of measures to addresses the risks associated with sustainable exploitation and management of groundwater resources in the NWSAS."*** Initial implementation of the sorts of measures required to ensure sustainable ground water use has begun with the pilot demonstration activities and their local offshoots.

102. Analysis of the "drivers" associated with converting the projects core outputs into these outcomes helps explain their relative success at this level. First, the pilot demonstration projects, with their approach of direct involvement of farmers in design, implementation and demonstration, helped ensure that the practical lessons emerging from these pilots were shared with other local water users, despite the deficiencies of government extension service. The project's extensive programme of local, regional and national workshops and field visits ensured that these lessons were shared with other partners at these levels. Their awareness and enthusiasm about these results were confirmed repeatedly during the evaluation. Awareness of project results is less detailed at higher levels but their implications are understood as a result of project events and meetings. The awarding of the King Hassan II award to the OSS (on the 20th anniversary of the founding of the OSS) for its work in promoting international cooperation for sustainable management of the SASS also helped raise the profile on their latest round of results, then emerging. The implications of the combined results of the pilots and the socio-economic survey, their confirmation of the need for more rational pricing of irrigation water across the NWSAS basin, will not be immediately reflected immediately in broad national policies but require longer term effort. This can be supported by the data bases and GIS tools -- substantially enhanced by the data generated by the socio-economic surveys – that are now available and being used by the Consultation Mechanism and national water authorities to support their water resource management, planning and monitoring.

103. An underlying assumption that the improved water management practices promoted by the project will help to stimulate widespread adoption by water policy makers and planners has yet to be validated. The pilot demonstration projects, while impressive, do not represent the scale of demonstration needed to shift policy. Nor are the socio-economic surveys' recommendations, however well founded, likely to be sufficient to overcome widespread reticence about changing water pricing policies. These limitations were foreseen at the outset of the project, when it was understood that additional support would be needed if

NWSAS III activities were successful. The current consensus in the region is that these results, if they are to be translated into national policies, need to be demonstrated on a larger scale, under less controlled circumstances and across the diverse range of bio-physical, socio-economic and cultural-political environments found in the NWSAS basin.

104. Rating for Project's Achievement of Outcomes: Highly Satisfactory

105. **Rating using RoTI methodology**: **A --**"The project's intended outcomes were delivered, and were designed to feed into a continuing process, with specific allocation of responsibilities after project funding."

Progress towards project's longer term objective

106. The evaluation also gauged the extent to which the project's outcomes to date have contributed -- and are likely to further contribute in the future -- to achieving a **longer term objective (**also described in the GEF evaluation methodology as an "intermediate state") of ***"Measures addressing the risks of unsustainable use of NWSAS water that are incorporated in the sector plans and strategies of the three national water authorities and other key water users in Algeria, Tunisia & Libya."*** In particular, we looked at how and how much the project's pilot demonstration activities and socio-economic survey have contributed to the project's longer-term objective and whether the recommendations generated by the project are being / or are going to be incorporated in sectoral plans and strategies. Interviews with local and regional government partners and a written survey (with Libyan partners) confirmed that the pilots have contributed to achieving the objective, particularly by stimulating changing attitudes at local and regional levels. On the other hand, while the project's recommendations have been delivered to the Consultation Mechanism and the three national water authorities who participate in it, they have not yet been translated into sectoral policies or strategies.

107. In general, the more local the level, the more inclined project stakeholders appear to be to embrace the lessons of the pilot demonstration projects. The use of desalinated water for irrigation, for example, is being pursued in the Tunisian provinces of Gabes and Medinine and incorporated in their strategy for the period 2015-2020. Robust pilot results across the border have convinced the regional government in Ouargla district to pursue this approach to drainage of irrigated lands in their planned expansion of irrigated perimeters during the five year planning period, 2015-2019.

108. While signs of real institutional change are becoming visible at more local levels, they are still not at national levels, where the project's results are still more at the level of "increased awareness" (as was likely for this kind of project). In Algeria for example, where the government is moving gradually towards a more liberalized economy, less dominated by environmentally perverse subsidies, the pilots' results were described by a senior national official as "first phase of awareness," that would need to be followed by a more diverse set of larger scale demonstration activities if they are to contribute to a shift in national policy. On the other hand, the government has already moved to take advantage of the successful drainage pilot. In Tunisia, the project's contribution to moving the country toward more effective irrigation water use was described as valuable support in a "rapidly evolving

situation." Similarly, the value of the project's results in orienting the country towards more rational water use policy was confirmed in Libya, with the caveat that such policy shifts remain theoretical due to the chaotic state of the country at the moment. But the consensus among senior water managers in the three countries appears to be that development of things like national level "strategic programmes and plans" is unlikely to emerge from the limited results of current project alone, but rather from a future phase of larger scale demonstration activities in the NWSAS basin. Particularly in light of the considerable cultural and political sensitivities surrounding water pricing in general, particularly in Algeria and Libya, national governments are not in a position to proceed with large scale change on the basis of a handful of tiny pilot demonstration projects and a socio-economic survey corroborating their results.

109. Consideration of the "drivers," or factors likely to affect progress towards the project's longer term objective, reveals a similarly mixed picture. On the one hand, formal processes have not been defined or pursued for integrating the project's operational recommendations into national policies. On the other hand, much has been done to ensure that the project's important insights regarding the socio-economic dimensions of irrigation water management are available to guide decision makers. The results of the pilots and the socio-economic survey and subsequent modelling – and the insights they offer regarding the range of economically and ecologically efficient alternative approaches to irrigation water management -- have been made available to senior decision makers (and others) in various ways, including meetings, workshops and even a short film. Yet, while decision makers can better understand the potentially positive role of shifts in water pricing, as one person said: "they are still not protesting in favour of paying more for water." While they may have become more familiar with the validity of such "economic instruments," their use will remain sensitive in a generally tense political atmosphere. Less contentious messages, regarding the importance, for example, of reducing soil salinity and of introducing new ways to address problems of soil salinity and waterlogging and saline groundwater, have also been effectively transmitted. At least as important, the links have been clearly defined between these sorts of challenges and the thorny issue of water pricing.

110. Rating on progress towards longer-term objective or "intermediate state": Satisfactory

111. **Rating using RoTI method: B --** "The measures designed to move towards the project's targeted intermediate states have started and have produced results, but there is not a clear indication that they can progress towards the intended long term impact."

Likelihood of impact

112. The project aimed to contribute to a longer-term impact of behavioural changes in environmental management, specifically: ***"More equitable sharing and more sustainable management of water and natural resources in the basin."*** Following the prescribed RoTI methodology, the ratings on the project's achievements of its outcomes (A) and progress towards its longer term objective (B) translate into a rating for the project's "overall likelihood of impact achievement" of "Highly Likely." This section considers the extent to which other evaluation evidence corroborates this finding.

113. First, not surprisingly, such a rating is less certain in the context of Libya today than in the other two partner countries. Confidence was expressed by partners in all three countries that Libya will emerge from its current crisis committed to moving towards more equitable and sustainable water management; the evaluator is not well placed to judge the validity of these assurances.

114. The ongoing success of the Consultation Mechanism and OSS in stimulating local, national and regional level synergies among farmers, government agencies and research agencies, instils confidence that they will be able to catalyse long-term and widespread change in the management of irrigation water in the basin. There are many encouraging signs, though they remain relatively isolated in the vast geographic context of the NWSAS: Algeria's soil drainage authority has become more active, at least in Ouargla district. A growing number of stakeholders are convinced of the validity of solar powered desalination of irrigation waters for use by desert farmers. The project's *"pédagogie de proximité"* approach offers a means to disseminate introduced technologies effectively, on a local scale at least. The effervescent political situation, while it has imposed challenges has also helped in some ways: In Tunisia, it is now permitted to discuss failures as well as successes, a critical step towards real experiential learning. Discussing water pricing was strictly forbidden in Ghaddafi's Libya while today it can be discussed. A move towards more open markets offers the potential of new economic opportunities, allowing farmers to earn far better returns on the right mix of irrigated crops. Government subsidies to producers are unlikely to disappear but can be re-directed to more wisely orient improved irrigation practices. For example, guided by project results confirming that irrigation water quality and the timing of its delivery are almost as important as water quantity, and the potential for far greater economic returns from alternative crops, governments may shift their emphasis to subsidising things like solar powered pumps and desalination equipment rather than subsidizing irrigation water. Without this project, stakeholders at local, regional and national levels would not have been exposed to the project's dramatic demonstrations of the opportunities for more efficient use of irrigation water. The participating national water agencies confirmed that they would not have been able to achieve these results on their own.

115. An examination of factors driving progress towards this longer term impact, and of assumptions behind expectations of this progress, partially support the results of the RoTI analysis while highlighting the need for caution and suggesting some areas of focus for future efforts. Replication of the improved approaches introduced in the pilot demonstration projects has taken place in Tunisia and Algeria, but on a very limited scale. While local governments in places like Ouargla and Médenine may be under pressure to support more general application of piloted approaches, these are not likely to spread more generally or very rapidly, without larger scale demonstration efforts.

116. The answer to the key question of whether or not there is sufficient political stability in the region to allow sustained improvement in water management practices depends on the temporal and geographic scale one considers. The results to date will certainly lead to sustained improvements in localized areas, though probably less in Libya than in the other two countries in the short term. Over the longer term, political stability in all three countries may actually become dependent upon government's effectively following up on the

project's recommendations on a far broader geographic scale, to ensure the ongoing viability of agriculture in the NWSAS basin.

117. The improved water management measures promoted by the project are unquestionably of great interest and relevance to local level water users who have been exposed to them and have stimulated local level replication in some cases (discussed below). They have also influenced the technical policies and programmes of some regional governments, though not national ones, for whom the feasibility of their broader application remains to be convincingly demonstrated.

118. Another qualified response is called for when considering whether or not national policies and programmes are, or would be, able to influence water users' practices sufficiently to enhance equitable sharing and sustainable management of water and natural resources in the NWSAS basin. On the one hand, these policies clearly can and do orient agricultural water use – witness the widespread waste of irrigation water encouraged by its systematic subsidization. On the other hand, there is a broad consensus that the region's agricultural extension services are not currently equipped to play a leading role in the development, implementation and monitoring of new approaches to irrigation water management; but they could be with sufficient training and support.

119. Overall, then, longer term impacts appear more "likely" than "highly likely" at this stage.

120. Rating for Project's Likelihood of Impact: Likely

121. Based on "highly satisfactory" achievement of their direct outcome, "satisfactory" achievement of their objective and a longer term impact that is "likely"…

122. **The project's overall effectiveness was rated as " Satisfactory"**

D. Sustainability and replication

123. ***Socio-political sustainability:*** A number of social and political factors can affect the sustainability of project results and progress towards impacts, both positively and negatively. Small scale producers of the kind who have been the focus of much attention in the project, and have been among the most directly influenced by its results to date, are seen as a source of stability, a force for national survival in turbulent times, across the Maghreb. They are likely to exercise significant political influence in the future, over politicians who are otherwise unlikely to be attracted to this kind of challenge. The same political turbulence that started with the destabilization and fall of the Ben Ali government in 2010-11 and delayed the project also led to new openness to discussion of sensitive issues, such as irrigation water pricing. The project's participatory approaches were also timely, in a context where people have become less accepting of "top down" approaches to introducing change.

124. Among the most important socio-political challenges are those related to working with a conservative, resource poor and aging farming population in much of the NWSAS basin. In some places, particularly in Tunisia, this is reflected in the fragmentation of land holdings as land is handed down to multiple offspring. Yet at the same time, it can be a challenge to find

replacements for old farmers. In a workshop help in Libya, of the twenty participating farmers, only one had a son interested in carrying on in agriculture. Relatively poor, older and less educated farmers working small holdings according to well established and often elaborate traditional water management protocols are less likely to embrace change than younger ones with the benefit of more capital, land, education and understanding of new technologies and opportunities. As well as these sources of inertia, agents promoting improved agricultural water use will have to contribute to overcoming widespread injustices that characterize much community level water management in the region before they can successfully improve their technical practices -- no small challenge. But the project has made a critical first step in demonstrating that more expensive water can lead to better livelihoods for farmers.

125. The issue of national and regional stakeholders' ownership of project results is more unequivocally positive. The well-established OSS tradition of support for regional co-operation, now reflected in the Consultation Mechanism supported by the three countries (though Libya's contribution has been suspended), together with the project's *modus operandi*, ensure a relatively high degree of ownership at all levels. The national and regional governments of all three countries are staffed and led by many individuals who have participated in a range of OSS sponsored activities, both within and outside the context of NWSAS III, and feel of sense of ownership for their joint accomplishments. Farmers and local extension agents involved in the planning, implementation and assessment of demonstration pilots have become their advocates.

126. As to whether there is sufficient awareness and support among the project's wide range of stakeholders to ensure the continued operation of activities it has initiated – once again the answer is not simple. Public awareness has certainly been built, mostly in the localities of the pilot demonstration sites and among farmers from other regions who have been brought to visit these. Awareness has become enthusiasm for the most successful pilot experiences, to the extent that some regional governments are challenged to meet the demand they have created among farmers who may not understand the challenges, and expenses, associated with introduced technologies. Project workshops have also exposed a wider range of local, regional and national government technicians and academics to the results of the pilots and the socio-economic surveys. But a more generalized adoption of the project's approaches and recommendations will not occur without a far larger scale of intervention.

127. Rating for Socio-political sustainability: Likely

128. ***Financial sustainability:*** The project's results to date could almost certainly be sustained to a certain extent and slowly built upon and their eventual longer term impact achieved, at least in part, without further external financial support. Regional and national governments -- particularly in Algeria, in Tunisia subject to their ongoing budgetary constraints, and almost certainly, eventually in Libya again -- are all likely to continue providing financial support for some of the more successful pilot activities. These are also likely to attract a certain amount of private sector support (especially with government partners). The main financial risk threatening the sustainability of results will be limited financial resources for meeting operation and maintenance costs of pilot activities already begun, and for replicating these. Offsetting these risks, in the short term are the opportunities opening up,

such as supplying European markets in winter and regimes of intensification and diversification developed in the pilot demonstration projects that can raise farmers' revenues from $100 up to $5,000 per hectare.

129. Rating for financial sustainability: Likely

130. ***Institutional sustainability:*** A number of issues related to the institutional sustainability of project results were raised by the French GEF during project implementation. The project's reply to these queries confirmed that some ongoing support for the operation and maintenance of infrastructure developed by the pilot projects would be assured by national organizations working with them, and by the Consultation Mechanism. The most successful pilots are the most likely to be sustained to the extent their results are valued by local farmers and regional governments. But institutional issues associated with supporting these sorts of new technologies at local levels, in the absence of effective national extension services, were not addressed by the project. In fact, this phase of the project did not involve the creation of substantial new institutional infrastructure, rather it depended on those already existing, partly as a result of two decades of regional co-operation led by the OSS, and now the Consultation Mechanism.

131. Institutional sustainability issues related to project supported information systems include the ongoing need for OSS to ensure occasional training of new national information specialists, whose number decline as a result of professional mobility. OSS also has a role to play in supporting the ongoing operation, maintenance and regular updating of these information systems, including the socio-economic / hydrologic models developed under NWSAS, together with specialists from the partner countries. In this respect, project results will be fully integrated within the ongoing operations of the OSS.

132. Rating for Institutional sustainability: Likely

133. ***Environmental sustainability:*** Meeting the project's goal of promoting more efficient use of irrigation water will mean convincing farmers to use less water and land, more efficiently. In this, they will be challenged by farmers' and governments' impulse -- especially in Algeria -- to bring more land into production, irrespective of the environmental consequences. Stimulating intensification will also be challenged by a climate expected to become hotter and drier in coming decades. This trend is likely to help promote another idea supported by the project as a way of reducing water use – progressive abandonment of summer cultivation.

134. A couple of environmental management challenges have been recognised during the pilot demonstration activities, such as the need to remove deep rooted surface crops like fig trees when installing sub-surface drainage infrastructure. This is not likely to be a problem in the far more widespread date palm plantations. A more serious issue to be addressed is the disposal of saline discharges. A number of options exist, including disposal into marine water where these are nearby, evaporation *in situ* and channelling into "waste lands." There is no consensus about how to best manage this issue, and solutions will likely need to be adapted to different bio-physical and socio-economic contexts. But, as Tunisia's Ministry of

Environment confirmed, the issue will need to be dealt with carefully in the design and implementation of future drainage and desalination activities.

135. Rating for environmental sustainability: Moderately Likely

136. ***Catalytic Role and Replication:*** The project's results have helped define a new vision for irrigated agriculture in the NWSAS basin, with new approaches that can improve the sustainability of water management while improving livelihoods through significant investments in local level infrastructure based on technologies proven elsewhere and adapted to local conditions. To date, the main incentives for making the shift towards this new approach to irrigated farming have been the demonstrated micro-economic returns of the pilot projects, corroborated by the data generated with a very extensive socio-economic survey and the predictive model that has been developed by combining survey data with OSS's existing hydrologic information. So far, these incentives have been far more effective at local and regional levels than at national ones. At local levels, farmers and their local government supporters have been transformed into catalysts for positive local change by playing lead roles in the planning and implementation of their pilots and dissemination of their results.

137. The project has carried out a series of workshops and study visits to share the results of pilot projects and replication of the most successful pilot experiences has begun. This is expected to continue and increase as the message spreads regarding opportunities to earn more with new crops and technologies and more capital inputs -- for things like solar pumps, drainage fields -- and less irrigation water. The issue of using desalination technology to provide irrigation water, for example, was raised recently in the Tunisian parliament and the country's southern provinces are keen to verify the feasibility of the approach on a larger scale. In fact, the demand for the technologies successfully demonstrated by the project is likely to exceed government capacities to support their spread, at least in the short term, in Tunisia and Libya.

138. Rating for Catalytic Role and Replication: Highly Satisfactory

139. Summary of evaluation ratings for sustainability:

Socio-political sustainability:	Likely
Financial sustainability:	Likely
Rating for institutional sustainability:	Likely
Rating for environmental sustainability:	Moderately Likely
Rating for catalytic role and replication:	Highly Satisfactory

140. Overall rating for Sustainability, Catalysis & Replication: Likely

E. Efficiency

141. The project was able to achieve its projected outputs despite challenging political situations, first in Tunisia then in Libya, where instability is ongoing. Political and civil unrest inevitably imposed delays on the execution of the project's socio economic surveys and pilot demonstration projects; both were widely dispersed across areas where travel was sometimes difficult or impossible. These delays led to higher than foreseen expenses for two outputs that were necessarily extended over the life of the project – project management and support to the Consultation Mechanism (discussed in Section B above). The pilot demonstration projects meanwhile received only about three quarters of their projected budget but were completed effectively, in part as a result of greater national contributions in several cases, although these national contributions were sometimes delayed (e.g., financing for the solar infrastructure in Reggane).

142. The project was able to achieve essentially the results that were originally foreseen, despite disruption, largely as a result of effective OSS management and technical support – obtaining high quality regional consultants, for example, at relatively modest prices through competitive bidding processes.

143. The project was also able to make efficient use of survey results; they carried out more surveys than originally planned, linked data generated by OSS with government data and combined newly acquired socio-economic data with existing hydrologic information to create a model able to suggest ways to optimize irrigation water use under different conditions. Efficiency in implementation of the surveys was ensured in part by taking advantage of existing networks of government staff in Algeria and Libya, and newly unemployed civil servants in Tunisia.

144. Rating for Efficiency: Satisfactory

F. Factors Affecting Performance

145. The project was assessed against six factors affecting performance and the results are summarized below. The project was rated most highly for its preparation and readiness, its approach to implementation and management and the extent to which project activities were owned and guided by the three participating countries. As one stakeholder expressed it: they benefitted from the reliable and expert support of OSS, from good experts who were always available, and from the strong commitment of the three countries.

146. ***Preparation and Readiness****:* One of the most robust dimensions of the original project design was its proposed arrangements for governance / supervision, management, and monitoring. Such strengths were due at least in part to the long experience of the project partners in Algeria, Tunisia and Libya, in working together on shared water management challenges. They not only shared expert understanding of these challenges, but had already defined effective arrangements for addressing them within this sort of regional project. Project design and subsequent implementation benefited from the profound understanding of OSS and its national partners, of the structure and function of groundwater exploitation technology and administration (if not yet all the socio-economic dimensions of this

technology and administration) in the basin. The project manager at OSS, for example, has been working on the succession of NWSAS projects for fifteen years. The shared Consultation Mechanism established in 2008, with its leadership rotating between the three countries every two years, was an important step towards a permanent commitment to cooperation at the policy level to ensure improved management of shared water resources. National and regional specialists are clearly enthusiastic about working with a project which they perceive as being a valued partner. The deepening tradition of collaboration has helped ensure that the countries are more comfortable with sharing information, such as hydrologic data, that they might earlier have treated as "top secret."

147. Rating for Preparation and Readiness: Highly Satisfactory

148. Implementation Approach and Management: The project has been carried out as planned, with the important caveat that it continued for two and a half years longer than originally foreseen as a result of circumstances beyond the control of the project. For the most part, it appears to have been managed very effectively, with OSS project management working closely and effectively not only with their partners in the national water authorities but also with regional level governments, mostly in Algeria and Tunisia. They worked closely with local specialists, providing them supplementary training when required. These local experts were able, for example, to exercise quality control when conducting the socio-economic survey, spotting outliers and exaggerations in a way that would not have been possible for external experts. This approach also permitted the project to combine the data they generated with those available from partners governments, allowing for the creation of more powerful analytic and predictive tools.

149. The surveys generated far more data than could be analysed within the scope of the NWSAS III project. The project has only been able to use those data directly related to water use; the other roughly 2/3 of the data gathered (taking advantage of the ambitious geographic scope of the survey) will be of great value for enhancing understanding of the socio-economic and cultural dimensions of irrigated farming in the basin. Implementation of the pilot demonstration projects was similarly astute, giving local specialists, as well as the farmers themselves, lead roles in project design, implementation and monitoring, with results that will go well beyond the immediate objectives of these pilots.

150. The project's response to political disruptions was mostly to wait them out, and take advantage of them where possible. Much project activity was completed in Libya by the time the situation there became so disruptive that little more could be done. In Tunisia, the project was able to engage the services of otherwise unemployed civil servants.

151. Among the weakest dimensions of project implementation was consistently poor translation of various project documentation from French into English. Libya participated in the project as an "Anglophone" country and the project's website now shares their many documents with a broad international audience. For both these reasons, consistently high quality translation was required, but was not achieved. This problem was raised by UNEP but not resolved by OSS; it may have been the result of an underestimate of the cost of this activity in the original project budget.

152. GEF's environmental and social safeguards (http://www.thegef.org/gef/node/4562) were developed after approval of the NWSAS project concept and were not specifically addressed during project design, though this does not appear to have resulted in negative impacts.

153. Rating for Implementation Approach and Management: Highly Satisfactory

154. ***Stakeholder Participation and Public Awareness:*** On one level, the project perceives widespread public participation as mostly something that will need to be done in a subsequent phase, when far larger numbers of farmers will need to be involved in introducing new approaches to agricultural water management in the basin. The socio-economic surveys, for example, touched on sensitive issues like water pricing and were not especially participatory, being carried out mostly by trained specialists in direct contact with individual farmers. However, the survey results give farmers in the basin a voice that they previously lacked.

155. The pilot demonstration activities were highly participatory, placing local farmers, producers' associations, local and regional government agencies, researchers and extension agents at the center of their design, implementation and monitoring. Farmers, as well as national and regional research organisations, were also consistently represented at the many workshops sponsored by the project in order to share information about the results of these pilot demonstration. Among other things, the pilot demonstrations defined a highly participatory methodology for introducing and disseminating new irrigation water management approaches in the basin in the future.

156. Rating for Stakeholder Participation and Public Awareness: Satisfactory

157. ***Country Ownership and Driven-ness:*** It was essentially the three participating countries, together with OSS, who proposed the NWSAS III project, as a logical next step in addressing the growing challenges associated with managing their shared water resource. By the time the project began, it was being guided by the countries' tri-partite Consultation Mechanism. The project's results, like those of past projects, have subsequently been shared with the three national governments (although this process was still incomplete for NWSAS III in mid-May 2015). Government partners in turn have demonstrated their engagement by their substantial in-kind contributions to project activities. Even Libyan support remained substantial during much of the project, dropping off only latterly as the political situation in the country deteriorated to the point where a contested national government could no longer ensure ongoing support.

158. Again, the pilot demonstration projects were notable for their degree of national and local ownership. The initial choice of which pilot demonstration projects to pursue, among the large number of possible options, was led by the three countries. Technical monitoring of these pilots – carried out with the direct involvement of local farmers, was carried out mostly by local government technicians, with support from the project's specialist and the concerned regional or national government authority. In at least some cases, the technologies demonstrated in the pilots were derived from ongoing research and development work being carried out by regional or national governments. The extent of

local ownership was also demonstrated by the willingness of regional governments to contribute inputs such as boreholes, pumps and towers for mounting solar panels, when required (although not always in a timely manner).

159. The socio-economic surveys were designed in collaboration with national partners and the resulting data bases and modelling, when ready, will be fully shared with the partner countries through the Consultation Mechanism. A senior officer at OSS confirmed "Nothing done at OSS stays in the drawers at OSS" while another noted that they have a well-established tradition of information sharing. The socio-economic data, like those in other data bases and information systems upgraded with project support, will all be made available to partner governments, as have all past project results. So workshops that provided training in how to use new information management systems also became opportunities to share these new systems and the data within them. National and regional specialists confirmed their satisfaction with this approach, and with the skills and data that are made available through OSS training and information sharing events.

160. Rating for Country Ownership and Driven-ness: Highly Satisfactory

161. ***Financial Planning and Management:*** Actual project disbursements, by component are compared with originally budget estimates in Table 3 below. The main variances are: roughly 25% less than expected for the pilot demonstration activities, about 40% more for the development of information systems, mapping and remote sensing, almost 25% more for the Consultation Mechanism and about 40% more for project management. Project evaluation did not appear as a discrete line item in the original project budget but was eventually expected to account for roughly 3% of final disbursements. The project budget was adjusted three times during implementation, with the agreement of the GEF. The main reason for these adjustments was the two and a half year delay in project implementation caused by political unrest in two of the three NWSAS countries. This led to the extension of support to the Consultation Mechanism and a longer than anticipated period of project management. The larger budget for the information management components was the results of the unanticipated complexity of the model emerging from the socio-economic surveys. The absence of a budget for evaluation in the original budget was apparently an oversight (discussed in the following section) addressed in the Inception Report. The impact of the diminished budget for pilot demonstration activities was apparently offset, at least to some extent, by larger than foreseen national in-kind contributions to these pilots.

Table 3 - Planned and actual UNEP-GEF disbursements, by project component

Project Components	Original / actual cost
1. Assessment of the socio-economic and environmental impacts of water extraction and use, and development of sector action programmes	$ 242,900 / $ 227,300
2. Demonstration of innovative approaches to address risks associated with the NWSAS, addressing efficiency of water management and irrigation and drainage	419,900 / 309,400
3. Development of Information System (GIS), mapping and remote	71,675 /

sensing	99,900
4. Consultation Mechanism	129,525 / 159,300
5. Project management	96.000 / 137,100
6. Evaluation & monitoring	--- / 27,000
Total project costs	$ 960,000

162. Project co-financing was received as planned; it is summarized in Table 4 below.

Table 4 - Project Co-financing

Name of Co-financier (source)	Classification	Type	Contribution	% of total co-financing
Government contribution	National governments	in-kind	$ 539,200	24
FFEM	Bilateral agency	grant	800,000	36
African Water Facility of the African Development Bank	Multilateral agency	grant	780,480	34
OSS	Intergovernmental Organisation	in-kind	146,400	6
Total Co-Financing			$ 2,266,080	100

163. Additional financing leveraged directly by the project is summarized in Table 5 below.

Table 5 - Funds leveraged by the project

Source of additional financing	**Amount of additional financing**
European Union-Agicab project	$ 151,400
GWP-WACDEP PROJECT	61,800
AFRICA GEODEV : in Kind –Satellite images	10 000
Total additional funds	**$ 223,200**

164. The project was audited annually by local accounting firms and its books were found to be in order.

165. Efficient contracting of highly effective local service providers helped the project to achieve its generally impressive results with limited budgets.

166. Rating for Financial Planning and Management: Satisfactory

Effectiveness of supervision, administrative and financial support and guidance, and technical backstopping: UNEP participated regularly in project Steering Committee meetings, where their participation was generally highly appreciated by OSS. OSS was particularly grateful for UNEP-GEF flexibility concerning budgetary adjustments in response to unavoidable delays in project implementation. UNEP technical guidance or backstopping was reflected in annual trip reports and provided as well by the iterative process of preparing project implementation reports (PIR); OSS and the participating countries already had a relatively high degree of technical expertise at their disposal. Deficiencies in higher level monitoring are discussed in the following section. One of the weakest dimensions of project oversight was related to identification of the growing risk of political disruption.

167. Rating for Effectiveness of Supervision, Support, Guidance, Backstopping: Satisfactory

168. Monitoring and Evaluation: *M&E Design:* The original project document did not include a logical framework analysis or a detailed plan for monitoring and evaluation. These were included however in the Inception Report prepared in late 2010. The logical framework in this Inception Report clearly outlined the project's expected progress from outputs to outcomes, though not towards longer term goals. The M & E plan in the Inception Report was very detailed, calling for more detailed monitoring information than the project was subsequently able to provide.

169. The Inception Report stated that "… the PMU will develop a national monitoring template for Impact Measurement which directly relates to the requirements for International Water indicator monitoring and this will be adopted and implemented within the first six months so as to allow monitoring to proceed at the national level during or immediately after the Inception Phase. This will provide measured and verified data for the overall M&E plan which will confirm Project delivery and confirm successful achievement of International Water Indicator targets in Process and Stress Reduction." Subsequent reports suggest this ambitious commitment was not met. Nonetheless, the Inception Report summarised when baseline information would be gathered and re-visited during implementation, and proposed a necessary budget. Their guidelines were partially 99followed in subsequent project reporting.

170. Overall, responsibilities for M&E activities were clearly defined and appear to have been well understood. There is no evidence however of initial attempts to determine the capacities of collaborating institutions, experts and farmers to participate in monitoring

activities, and this may have contributed to insufficient resources being budgeted for this sort of participation.

171. Rating for M & E Design: Moderately Satisfactory

172. M & E Budgeting & Implementation: A mid-term evaluation was originally scheduled to take place during the project's second year but, as mentioned earlier, was not carried out. A comprehensive project terminal report has not yet been prepared but is scheduled for completion before project closure in December 2015. The project has produced an impressive synthesis report in April 2015 on the results of the socio-economic surveys and the pilot demonstration projects and the recommendations emerging from them. Semi-annual progress reports were prepared, either in the form of annual PIRs and progress reports to the Project Steering Committee. OSS also prepared occasional technical reports.

173. Neither the Project Document nor the Inception Report made a specific commitment to UNEP using the GEF International Waters "Tracking Tool" at mid-point or end of the project, as this mechanism was not yet in place when the project was endorsed by the GEF. Like GEF environmental and social safeguards, this tool is applied only to projects approved after its adoption.

174. The project's partners in the three countries certainly participated fully and enthusiastically in the terminal evaluation. They also appear to have collaborated extensively in monitoring, especially in monitoring the progress and results of the pilot demonstration projects. Both farmers and local technicians participated in monitoring things like crop responses to new irrigation system, economic returns on water and land, levels of water tables, levels of water consumption, water prices, soil and water quality (especially salinity). This participatory monitoring approach not only ensured valuable feedback to the project but also promoted experiential learning on the ground. The project budget for this kind of monitoring activity was insufficient, resulting in most work being done voluntarily with little support for costs incurred.

175. The project's principal mechanism for reporting to international partners, the Project Implementation Report or PIR was produced for most (though not all) years of project implementation. PIR's helped international partners to keep track of project results and progress and appear to have been reasonably complete and accurate, with some notable exceptions and contradictions, noted below.

176. UNEP-GEF and OSS disagreed in their assessments of political risk in the region. In the PIR covering "Fiscal year 10" (reporting on the period July 2009 to June 2011) for example, the Project Manager's rating is "low risk" (i.e., "political context is stable and safe"). Given that the so-called "Arab Spring," is reckoned to have started in Tunisia in December 2010 and long-term Tunisian leader Ben Ali was ousted in January 2011, with considerable attendant political turmoil and civil unrest, UNEP-GEF questioned whether this rating of "low risk" was accurate. The response was that the risk was mostly confined to Libya. Had it been confined to Libya – which appears unlikely -- then this alone would have merited a higher rating. The UNEP Task Manager's rating was a more realistic "substantial risk."

177. Other comments in the same PIR are confusing, e.g., "Commenting on the usefulness and relevance of indicators would be premature given that we are at kick off of the activities." This does not seem appropriate for a project that has been officially underway for two years. And it is particularly confusing in light of a subsequent observation to the effect that "…we are optimistic as to the relevance of selected indicators and the outcome of the data harvesting process." This latter comment is doubly confusing as it is a response to the following question (which it does not seem to address): "Describe any challenges in obtaining data relevant to the selected indicators; has the project experienced problems to cover costs associated with the tracking of indicators?"

178. The PIR covering the period from 1 July 2011 to 30 June 2012, includes "progress ratings" for project activities. The project manager's risk rating for "political stability" has been raised to "medium," but still not "substantial" (for which they offer no definition in the PIR form) or "high," despite the deepening crisis in Libya. Again, the UNEP task manager disagreed, suggesting a higher rating. The project's M & E system is assessed and it is recognised that its indicators are not SMART (we concur). Yet the previous year's PIR had reported (section 4.8) that indicators in LFA had been changed to make them SMART.

179. In the PIR covering the period 1 July 2013 to 30 June 2014 there is recognition of a "high" risk of political instability in the region. Also, inexplicably, for the first time, there is a rating of "high" risk from environmental conditions, meaning: "Project area has very harsh environmental conditions." This risk was rated "low" in the PIR for the period 2009-2011, when the bio-physical environment of the desert and steppes of the NWSAS basin would likely have been very much the same as three years later.

180. The conclusions of the OSS Technical Report for the period January 2013 to September 2014 states that "We can say that by the end of the project all planned activities were entirely realized." Yet a few pages earlier the same report described the different reasons why a couple of the pilot demonstration projects had not yet been fully completed.

181. Examples of inconsistencies in reporting such as those cited above suggest that at least some project reporting may have been done, at least in part, as a *pro forma* exercise, without concern that they are being read critically. This may be understandable in light of the considerable reporting burden placed on the staff of OSS, who would benefit from more concise, better written and more practical progress reporting. One way to reduce the reporting burden on the executing agency in particular (and to increase the quality of their reporting) would be to do as much M & E as possible jointly with other donors. During NWSAS III, OSS was obliged to provide separate annual progress reports to the UNEP-GEF and French GEF (FFEM) partners, though the semi-annual progress report to the Project Steering Committee served both UNEP and FEEM. FFEM apparently planned to do their own separate final evaluation of NWSAS III ("SASS III" for them) shortly after this evaluation. A joint to monitoring and evaluation has already been recommended by OSS; it would require negotiation and some flexibility from international partners but would have the great virtue of reducing the reporting burden on OSS staff.

182. Rating for Budgeting and funding for M & E activities: ***Moderately Unsatisfactory***

183. Rating for M&E Plan Implementation: ***Moderately Satisfactory***

184. Overall rating for Monitoring and Evaluation: **Moderately Satisfactory**

185. Summary of Ratings for Factors Affecting Project Performance

Preparation and Readiness:	**Highly Satisfactory**
Implementation Approach and Management:	**Highly Satisfactory**
Stakeholder Participation and Public Awareness:	**Satisfactory**
Country Ownership and Driven-ness:	**Highly Satisfactory**
Financial Planning and Management:	**Satisfactory**
Effectiveness of Supervision, Support, Guidance, Backstopping:	**Satisfactory**
Project M & E:	**Moderately Satisfactory**

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186. Overall rating for Factors Affecting Project Performance: Satisfactory

G. Complementarity with UNEP strategies and programmes

187. Linkages to UNEP's Expected Accomplishments and the Bali Strategic Plan: Project results contributed primarily to the achievement of UNEP's earlier (2010-13) medium term strategy (MTS) goal of promoting resource efficiency, including sustainable production. It also helped UNEP to address three other priorities in this earlier MTS: climate change (insofar as the project initiated a process of helping NWSAS producers to adapt to expected climatic changes in the northern Sahara region); ecosystem management (the project worked to promote the ecosystem benefits of more efficient use of NWSAS water) and environmental governance (through project support for ongoing improvements to tri-partite governance of the shared water resource).

188. Project results appear even better aligned with UNEP's current MTS. It is again in line with the organisation's renewed strategic focus on issues related to climate change, ecosystem management, environmental governance and resource efficiency. It also focuses on emerging issues that UNEP has opted to monitor carefully: challenges for food security such as growing water scarcity, managing the consequences of climate change, shifting paradigms for managing water-land interactions, and accelerating the adoption of renewable energy technologies.

189. The project's outcomes and achievements are at least as well aligned with the objectives of UNEP's earlier Bali Strategic Plan, with its focus, *inter alia*, on strengthening the capacities

of developing country governments for achieving their national environmental goals, targets and objectives, and for developing national research, monitoring and assessment capacities in support of national institutions collecting, analysing and monitoring environmental data and trends.

190. ***Gender:*** Based on the observations of project participants, the project's short term effects on gender equity, gender roles and issues related to links between natural resources and the vulnerability of women and children, have been minimal. They have however set the scene for potentially more significant effects in the future.

191. The pilot demonstration projects have created improved conditions conducive to new economic activities for women in oasis communities such as spinning and weaving, conserving of fruit and vegetables (e.g., sun dried tomatoes), and increased raising of small livestock. In the process of promoting desalination of local water resources for use in irrigation, they also offer new sources of potable water, likely to contribute to reduced workloads for women. Improved economic conditions associated with new opportunities for commercial agriculture are expected to diminish frictions generally within impoverished families, and to lead to increased opportunities for families to educate girls.

192. The mass of socio-economic survey results that is yet to be analysed contains a wealth of data about gender roles and relations within agricultural communities in the NWSAS basin. In addition to questions about issues like livestock, work patterns, and land tenure, the surveys asked things like: "Is this farm managed by a man or a woman?" "How many workers the farm are male and how many female?" "How old are these individuals?" These sorts of data offer important opportunities for future assessment of gender impacts.

193. Finally, various project workshops have demonstrated how improved water management can stem local degradation to which local women and children are particularly vulnerable.

194. ***South-South Cooperation:*** The NWSAS projects (previous phases as well as this one) have been essentially constructed around "South-South Cooperation." They have done a great deal to strengthen such cooperation not just in the NWSAS basin but throughout the Sahara and Sahel regions where OSS operates because the NWSAS projects have provided models for co-operation that have been adapted by other OSS partner countries sharing groundwater resources.

V. Conclusions, Lessons Learned, and Recommendations

A. Conclusions

195. **Conclusion 1: What if there had been no project?** Without the NWSAS III project, the various project participants, from those in the communities carrying out pilot demonstration projects to those operating at the level of the NWSAS basin as a whole, would likely have continued "business as usual." The consequences of this would have included foregoing the local, national and region wide synergies that have either been created or enhanced through project activities, and a great deal of information acquired about both the agricultural water use practices of farmers in the basin and how readily available technologies can be adapted to the needs of those farmers and their shared water resource. The NWSAS as a whole

would have continued on the road earlier described by OSS, one leading to an inevitable crash in irrigated agriculture in the basin, with little or no preparation to avoid this outcome.

196. **Conclusion 2: This project was one important step in a long-term process in which much has been done and much is left to do, and which is complicated by a changing climate.** The widespread longer-term behavioural changes sought by this project could not have been achieved in a three year project (even when extended to over five years) but are significantly closer due to the results of the NWSAS III project. The project's key messages for the governments of Algeria, Tunisia and Libya have been that: 1) there are readily available technical solutions to the daunting challenges facing irrigation water management in the basin, 2) these solutions can significantly increase agricultural incomes though 3) they also involve substantial capital investments and 4) require far more efficient use of the scarce water resource. The imperative to begin implementing new approaches is exacerbated by a drier and hotter climate.

197. Conclusion 3: There is a willingness to derive greater value from irrigation water among governments, and some farmers in the basin. The project's two main activities have demonstrated that, while highly inefficient irrigation practices are still ubiquitous, at least some farmers in the basin are prepared and able to derive greater value from their irrigation water, even when this requires paying more for this water. This population of potential innovators offers a basis for expanding the scale of demonstration activities, which their governments would support.

198. **Conclusion 4: There is potential for dramatic shifts in irrigation technology that can be largely led by producers, supported by enhanced extension services.** The pilot demonstration projects have demonstrated the efficacy of innovative, participatory approaches to demonstrating and diffusing introduced water management technologies. These approaches involve assigning lead roles to the producers themselves, but still require effective support from government extension agents.

199. **Conclusion 5: The next step is to work with larger scale demonstration activities.** The partner countries and OSS agree on the need to build on the results of this project yet these results do not constitute a basis for massive shifts in national policies. The approaches tested in the pilot demonstration projects need to be validated on a much larger scale and in a wider range of socio-economic, bio-physical and cultural conditions found within the NWSAS, over several agricultural seasons. While technical constraints are not likely to pose major barriers, substantial institutional and financial challenges – such as those related to collective water management, land tenure, market access for new products, etc. - will need to be addressed. Precedents exist for large scale government investments in this sort of undertaking in the region, such as previous Algerian and Tunisian government investments in dam construction. This sort of initiative would be in line with current Algerian and Tunisian government policy directions. Private investors would likely be interested as well, once new approaches are shown to be feasible and government backing assured.

200. **Conclusion 6. The imperative and opportunities to greatly increase the efficiency of agricultural water use in the basin are tempered by significant barriers.** The main

barrier will inevitably be resistance to paying more for water, especially among poorer, older farmers and those accustomed to paying little or nothing for their irrigation water.

201. **Conclusion 7. Expanding the scale of project pilot demonstration results will require addressing significant environmental management challenges.** The most significant issue, by far, appears to be the need for ecologically and economically acceptable ways to dispose of or re-use saline residues generated by desalination technologies.

202. **Conclusion 8: The current Libyan situation is not an impediment to immediate next steps, although political order is required for long term success.** The project has been successful in keeping Libyan partners involved to some extent thanks to links and relationships developed since the beginning of the century; they are expected to, and themselves expect to, be more fully involved again in the future. If they were not able to fully participate (initially?) in a programme of larger scale demonstrations, for example, this would still be a valid next step in the improvement of NWSAS water management.

203. **Conclusion 9: OSS and national partners are committed to updating shared databases while both project stakeholders and others are interested in information generated by the project.** The Consultation Mechanism, with OSS support, has -- and will continue -- to nurture the partner countries' willingness to share information about the NWSAS. Sharing information about the results of NWSAS III's pilot demonstration projects and socio-economic survey as widely as possible, both within and outside the region, would be valuable for building support for future initiatives within and outside the region.

204. **Conclusion 10: Monitoring and evaluation can be done more effectively and efficiently.** The participatory approach to monitoring the pilot demonstration projects was successful but underfunded. Results monitoring for the project as a whole was overly complicated and not always coherent.

205. **Conclusion 11: There is an ongoing role for intellectual leadership from OSS as well as their technical support to the NWSAS countries and their Consultation Mechanism.** Diverse technical expertise mobilized both within and outside of OSS, training and information management and sharing, impartial analysis of information, support to the functioning of the Consultation Mechanism – these were all indispensable roles played by the OSS which will be needed in the future if the three countries are to advance towards improved management of the water resources of the NWSAS.

Table 6 - Summary of evaluation ratings

Evaluation parameter	**Evaluation rating**	**Page in report**
Strategic relevance	HS	18
Achievement of outputs	HS	19
Effectiveness: Attainment of project objectives and results, based on…	S	25
Achievement of direct outcomes	HS	

Achievement of project goal and planned objectives	S	
Likelihood of impact	L	
Sustainability and replication, based on…	L	30
Financial	L	
Socio-political	L	
Institutional framework	L	
Environmental	ML	
Catalytic role and replication	HS	
Efficiency	HS	34
Factors affecting project performance, based on…	S	34
Preparation and readiness	HS	
Project implementation and management	HS	
Stakeholders participation and public awareness	S	
Country ownership and driven-ness	HS	
Financial planning and management	S	
UNEP supervision and backstopping	S	
Monitoring and evaluation	MS	
Overall Project Rating	**HS**	

B. Lessons Learned

206. **Lesson 1: While climate change complicates water management challenges it can also help push needed change.** In parts of the NWSAS basin for example, the trend to drier and hotter summers can help encourage producers to abandon summer crops. This in turn can help promote the alternative of new winter crops with reduced water needs and potentially greater market opportunities.

207. **Lesson 2: Behavioural improvements that require changes in long established government policies and traditional cultural attitudes take time and careful planning to be achieved effectively.** The project implementers developed coherent alternatives to traditional policies and practices of heavily subsidised water used inefficiently by traditional producers for whom "free water" is seen as a natural right. Yet they also recognized that introducing viable alternatives required prudence, referring in the socio-economic survey to "economic instruments," for example, instead of "more rational water tariffs" or "higher water prices". They recognize that a handful of convincing pilots and rich survey data are a first step but are not yet sufficient, on their own, to drive widespread change.

208. **Lesson 3: Providing conclusive proof of irrational resource use and micro scale demonstrations of effective alternatives are necessary first steps but are not sufficient to induce broad policy change across a complex region such as the Maghreb:** These project results were one (important) step in a longer-term process in which much is left to do. Overcoming resistance to change will require subsequent escalation of effort, solidly grounded in these results.

209. **Lesson 4: Producers can play lead roles in local adoption of technological improvements when these changes are introduced through well adapted participatory approaches but they still need effective technical support.** The kinds of carefully planned participatory approaches adopted by the project can be very effective for supporting local adoption of technological innovations. They require a support capacity among government or other extensions services that can be relatively easily nurtured when working on a micro-scale (but would likely have to be developed differently when working on a larger scale).

210. **Lesson 5: Innovative ways can be found to carry out cross-border activities in difficult times:** The project was able to keep Libyan partners involved in different ways, despite a deteriorating political and security situation in their country. This was possible in part because of a foundation of trust and long-term personal relationships built up over fifteen years of tri-partite cooperation in the NWSAS. An example of constructive adaptation was the shifting of one of Libya's two pilot demonstration projects to a site in Tunisia that was relatively accessible from north-west Libya. The evaluation involved Libyan partners through a written survey questionnaire in lieu of a field visit.

C. Recommendations

211. **Recommendation 1: The three countries sharing the NWSAS should launch a network of larger scale demonstration activities around the basin, linked to and supported by a system of regional support and information sharing similar to that of the NWSAS III project.** This necessary next step towards long-term, widespread behavioural change should build upon the results of the NWSAS III and the widespread consensus developing among senior specialists within and outside government in support of adaptation of new water management technologies in the NWSAS.

212. **Recommendation 2: The three governments and their institutional partners need to support and protect innovative farmers who want to derive greater value from irrigation water.** The approach recommended for introducing improved water management technologies assigns a lead role to farmers interested in innovative approaches. These individuals need to be assured effective technical support as well as the necessary legal, administrative and legal frameworks needed to facilitate change. The alternative – of failing to properly support such innovators – would risk greatly delaying progress towards widespread behavioural change, if others saw negative consequences in attempting change.

213. **Recommendation 3: The three countries need to enhance their extension services in order to support a shift in technology led by producers.** The pilot demonstration projects ensured local government staff were fully involved at all stages of these undertakings, training them as necessary to ensure they could provide longer term support to local farmers. Ensuring the success of future demonstration activities on a larger scale will also require that farmers and their local and regional government partners are able to implement, or provide support for, different types of technological innovation and new approaches to community management of irrigation water.

214. **Recommendation 4: The three countries and their partners will require astute strategies to overcome significant cultural and political barriers to generalizing the results of the micro scale pilot demonstration projects and responding to the recommendations emerging from OSS's socio-economic-hydrologic models.** The cultural and political barriers to more rational irrigation water pricing in particular will continue to call for considerable caution and locally adapted strategies from the three countries and their partners to avoid evoking negative reactions to local innovation. Ongoing demonstrations will be needed of the unacceptably high economic and ecological costs of inefficient water use driven by perverse subsidies on one hand, and of the opportunities for greatly improved economic returns from efficiently managed water resources on the other. This will need to be combined with experiments in water pricing combined with subsidies for other inputs, such as new pumping, drainage and desalination technologies. Widespread injustice in community water management systems and problems in accessing distant markets for new products will also need to be addressed before novel approaches can be effectively established.

215. **Recommendation 5: The NWSAS partners, led by a strengthened Consultation Mechanism and the OSS, should move quickly to share as much information as possible, as widely as possible, within the region and beyond.** There is likely to be widespread interest in NWSAS III results both inside and outside the Maghreb region and this interest should be used to maximum advantage to garner support for the necessary changes. Information from the socio-economic studies and the pilot demonstration projects should be shared with the international academic community, for example, to the extent possible. It may be possible to use it as an incentive for research partnerships among institutions inside and outside the three countries. All information shared by the project in English, if it is to have the desired impact, needs to be properly translated.

216. **Recommendation 6: The OSS should continue to provide intellectual leadership & technical support for improved irrigation water management in the NWSAS basin.** OSS has played a seminal role in promoting cooperation for improved water management in the basin during this project, and well before it. This role will need to continue, under the leadership of a strengthened Consultation Mechanism.

217. **Recommendation 7: Future activities carried out by the NWSAS partners, with or without external support, will need to be complemented by robust, efficient and well financed national and local systems for monitoring and evaluating the socio-economic and environmental results of innovative approaches.** Future M & E systems need to be defined by the needs of the programmes of technological innovation, as well as those of financing partners, and to report regularly to the Consultation Mechanism. They should be efficient and practical, minimizing time devoted to *pro forma* reporting and maximizing participatory analysis and experiential learning at all levels.

218. **Recommendation 8**: **There is an interesting opportunity for UNEP-GEF to support future activities in the NWSAS basin.** The goals of the NWSAS partners coincide with those of UNEP and GEF in a number of areas. Support from external partners like UNEP-GEF offers OSS, and the national organisations they work with, greater flexibility in their operations and can also enhance the legitimacy of these operations in the eyes of their

respective governments. If UNEP-GEF is interested in exploring options for future support, then they should begin discussions with the NWSAS partners at the earliest possible date. The next phase of the NWSAS programme is likely to be considerably larger in scale, more complicated and demanding than the phase just finished. Defining suitable roles for external partners like UNEP-GEF, and assembling the necessary support for the sort of initiative envisioned, is likely to take at least a year or two.

Annexes

Annex 1. Response to stakeholder comments from UNEP EOU and independent evaluator

Reference	Comment	EOU comment	Evaluator response
B. 45	It was decided from the beginning of the project that the implementation of activities would be ensured by a Project manager from OSS with the involvement of Consultation Mechanism.	EOU not in a position to judge on actual set up, evaluator to check accuracy of description of implementation structure.	There is no contradiction between the report and OSS comment. OSS implemented activities under official direction of CM. As noted elsewhere, the actual relationship btn CM and OSS project management was sometimes ambiguous
50	June 2010	Ok	OK. Noted.
52	December 2015-you can verify with Rodney Vorley and Christine Haffner	Ok	OK. Noted.
73	The Budget was adjusted three times with the agreement of GEF. The reduction of the pilots' budget could be explained by a greater engagement of countries through in-kind contributions.	Ok, can be clarified under paragraph 159.	OK: Clarified in para. 159
91	The project lasted 7 years. However, exceptionally and only for two years (2010 - 2012), the project manager was at the same time the coordinator of the Consultation Mechanism with the consent of the project partner countries. This helped to bolster the project budget which was deemed insufficient.	Evaluator to consider clarification on role/funds for PM.	We clarified above that the project started mid- 2010 and will officially end Dec. 2015, though it was substantively completed by late 2014. So it's accurate to say that the PM and CM coordinator were the same over much of the project. This is clarified and its effect on project budget noted.
129	During this phase of the project implementation process, the focus was on the results obtained by the demonstration pilots which were conducted at a small-scale of one hectare. These results were disseminated during national and regional workshops. Several other aspects, including the institutional aspect, will be addressed during the replication of results at a larger scale as part of a subsequent phase - - this would be both feasible and justifiable.	EOU understanding is that the comment provides further explanation for the situation described in para 129, but there is no discrepancy in view. Evaluator to consider whether further text should be added to clarify.	I agree, that there is no discrepancy. The OSS view expressed regarding institutional aspects to be addressed in a subsequent phase are reflected in the Conclusions and Recommendations section.

166	Even though information and several indicators are already included in the project's reports (HYP, PIR, Annual report and final report), they should and will be presented in a more suitable format for M&E	Ok noted, tough not clear when this more suitable format would become available. Paragraph states current situation and is therefore accurate. Evaluator could consider adding that team is aware and will work towards this.	Comment noted. The report also makes similar comments. No action needed.
170 d	All reports were elaborated and submitted. In addition, we produced tools of dissemination (film documentary, flyers, posters,….). As for the terminal report, to be elaborated based on the GEF/UNEP template, it constitutes the project's technical and financial closing report. The report is being elaborated and will be submitted before the project's deadline set for 31/12/2015(New deadline for this project) as indicated in Project Monitoring and Evaluation Plan" Project Terminal Report During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities."	Ok evaluator to clarify that team is aware of need to produce report by end of the year.	OK. Done.
174 and 177	During the period 2010-2014, the security situation in Tunisia was never of an abnormally high alarm level. The situation in Libya was not dramatic and in Algeria was normal.	Ok there is disagreement on this as UNEP TM did not agree with a low risk rating due to the Arab Spring. EOU proposes that the evaluation notes that local partners did not necessarily perceive the risk level in the	I have noted the opposing views. I think OSS comments may reflect misunderstanding about the nature of "political risk" being discussed. It is not synonymous with "insecurity." Rather it includes the risk of disruption to operations

		same way.	due to political upheaval, which was certainly present in Tunisia, then in Libya.
175	The project did not start in 2009 as initially planned, but in mid of 2010 due to unresolved administrative problems.	Ok noted under comment in para 50	OK.
178	All activities were conducted. As for the two pilots in question, the borehole relative to pilot 5 in Tunisia collapsed and was replaced by another borehole. For pilot 1 (Algeria), there has also been a delay in the installation of a solar panel which being addressed by the Algerian authorities. However, more than 90% of the results and objectives were achieved.	Ok comment confirms existing text. Evaluator to consider adding further details.	I think these details are not needed here, where the point being made is about discrepancies in reporting. Details of outputs are discussed elsewhere.
179	This common evaluation method was recommended by OSS to two project partners but without success	Ok noted	OK. Previous OSS recommendation noted.
180	*We suggest: Moderately satisfactory*	EOU considers that current assessment is balanced, even considering further details provided.	OK. I agree that the current rating reflects the details provided regarding funding for M & E
197	COMMENT: The recommendation formulated by the auditor in point 195 is to be taken into consideration. « This population of potential innovators offers a basis for expanding the scale of demonstration activities, which their governments would support ». Quelle est la finalité de ce commentaire ?????	Evaluator to clarify with OSS.	The suggested addition to the conclusion 4 is not necessary here. It is captured in subsequent recommendations 1-3.
213	Currently, OSS works to strengthen the Consultation Mechanism. Within the framework of cooperation OSS/WWP-MED, the TOR are elaborated and an expert will be recruited in order to produce propositions to countries.	Comment noted and there will be an opportunity to report on this in the implementation plan in which all recommendations will be summarized (and used for compliance monitoring)	OK. No addition required to recommendation.

Annex 2. Evaluation TORs

PROJECT BACKGROUND AND OVERVIEW
Project General Information

Table 1. Project summary

GEF project ID:	3645	**IMIS number:**	GFL/2328-2731-4A78
Focal Area(s):	International waters	**GEF OP #:9**	Integrated land and water multiple focal area operational programme.
GEF Strategic Priority/Objective:	IW-SO-2 (To Catalyze Transboundary Action Addressing Water Concerns) IW-SP-3 (Balancing overuse and conflicting uses of water resources in surface and groundwater basins that are transboundary in nature)	**GEF approval date:**	22 April 2009
UNEP approval date:	23 July 2009	**First Disbursement:**	09 October 2009
Actual start date:	February 2009 (planned)	**Planned duration:**	36 months
Intended completion date:	9 May 2012	**Actual or Expected completion date:**	31 December 2012
Project Type:	MSP	**GEF Allocation:**	USD 960,000
PDF GEF cost:	USD 32,734	**PDF co-financing*:**	USD 46,000
Expected MSP/FSP Co-financing:	USD 2,266,080	**Total Cost:**	USD 3,304,814
Mid-term review/eval. (planned date):	n/a	**Terminal Evaluation (actual date):**	2015
Mid-term review/eval. (actual date):	n/a	**No. of revisions:**	2
Date of last Steering Committee meeting:	20-21 October 2014	**Date of last Revision:**	20 March 2011?
Disbursement as of September 2014	$851,210	**Date of financial closure:**	January 2015
Date of Completion:	Expected March 2015	**Actual expenditures reported as of September 2014:**	$786,435
Total co-financing realized as of September 2014:	US$ 2,266,080	**Actual expenditures entered in IMIS as of September 2014**	$731,259
Leveraged financing:	?		

ACRONYMS AND ABBREVIATIONS

ANRH	Algerian National Agency for Water Resources/ Agence Nationale des Ressources en eau d'Algérie
AWF	African Water Facility
CCC	UN Framework Convention on Climate Change
CCD	UN Framework Convention to Combat Desertification
CBD	UN Framework Convention on Biological Diversity
DGRE	Directorate General of Water Resources - Tunisia

FFEM	French Global Environment Facility/ Fonds Français pour l'Environnement Mondial
GEA	General Environment Authority - Libya
GEF	Global Environmental Facility
GWA	General Water Authority – Libya
GWRC	General Water Resources Committee – Libya
MRE	Ministry of Water Resources – Algeria/ Ministère des Ressources en Eau Algérie
NWSAS	North Western Sahara Aquifer System
OSS	Sahara and Sahel Observatory/ Observatoire du Sahara et du Sahel
SAP	Strategic Action Programme
SASS	Systeme Aquifere du Sahara Septentrionnal
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Science and Culture 0rganisation

Project rationale

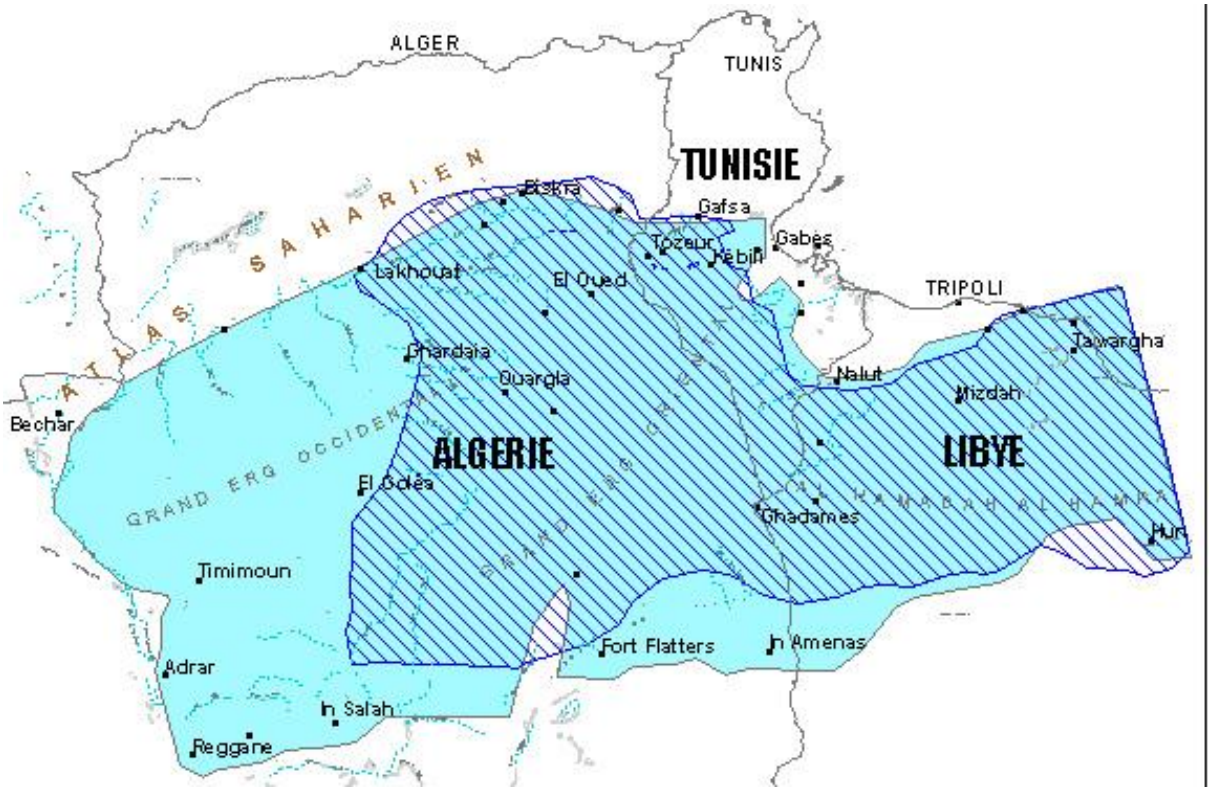

Figure 1 Location of the NWSAS project zone.

The North Western Sahara Aquifer System (NWSAS) covers a territory of over 1 million km^2, of which 700 000 in Algeria, 80 000 in Tunisia and 250 000 in Libya. The mode of exploitation of this aquifer has experienced an alarming increase over the past few decades, reaching approximately 2.2 billion m^3 /year (1.33 billion in Algeria, 0.55 in Tunisia and 0.33 in Libya) resulting in very significant direct and indirect negative environmental impacts, affecting in particular the irrigated areas by salinisation and hydromorphy (logging), and with resulting negative socioeconomic impacts on water users.

Aware of the extent of the environmental and socio-economic threats looming on the future of the development of their respective NWSAS zones, decision makers in the three countries initiated this project in order to to take steps towards a reasoned and sustainable management of this resource.

The project to be evaluated is the third stage of an ongoing activity conducted in the NWSAS under the auspices of the Sahara and Sahel Observatory (OSS).[1]

The first phase of the project was initiated in 1997 and was funded by Swiss Cooperation, IFAD and FAO. This phase focused on assessing the potential and limitations of the NWSAS[2] .

[1] The OSS was founded in 1989 to address common environmental challenges and has 22 African and 5 northern country members. Its mission is to monitor and better protect arid and fragile regions subject to environmental degradation.

[2] It built on previous studies of the aquifer implemented in UNESCO in 1970 and continued under UNDP (1984).

The second phase, funded by GEF, focused on modelling and monitoring the aquifer status. This culminated in the formation of a tripartite agreement for joint action – the Mechanism for Concerted Action.

Based on the recommendations of the evaluation of the second phase[3], the objective of the third phase of the project was to consolidate the work done: to deepen the understanding of the socioeconomic aspects of water use, consolidate and improve the data base and GIS management tools and to develop pilots, recommendations for improvement management. The overall objective of this stage was to formulate and initially implement a set of actions to address the risks associated with sustainable exploitation and management of groundwater resources in the North West Sahara Aquifer System (NWSAS), with a focus on sustainable agricultural practices and environmental management. The recommendations for action are intended for the Consultation Mechanism and the Water Authorities of the three countries. Its approach was to be participatory involving all stakeholders at the three levels of decision-making (local, regional and central). It is structured around five integrated components which are described in the next section.

Global Significance

The project objective makes an significant contribution to OSS mission to to monitor and better protect arid and fragile regions subject to environmental degradation.

In addition, the project activities support the participating countries in fulfilling their commitments to key internation conventions:

UN Framework Convention to Combat Desertification (CCD)

The project would help the three countries to fulfil their commitments by reducing pressure on all Natural Resources and Ecosystems based on increasing local agricultural production to meet the feeding needs of their populations and their livestock, as well as contribute to their stability in balance with their environment.

UN Framework Convention on Biological Diversity (CBD)

The project would help rehabilitate the biodiversity heritage in the oases zones and in the steppes, as well as in the wetlands.

UN Framework Convention on Climate Change (CCC)

This project would help participating nations to anticipate the risks of increase of pressure on the resource, and this, based on the identification, reliability and implementation of alternative solutions.

The project document observes that "This project, in spite of the modesty of the financial made available to it, will contribute to the safeguard of the global environment via promoting a sustainable human activity in one of the most vulnerable regions of the planet, thus helping protect a world heritage of an invaluable richness".

Relevance to GEF/UNEP priorities

This project contributes to two of GEF's strategic objectives in the focal area of International Waters (IW).
IW- strategic objective 2 :- to catalyse transboundary action addressing water concerns.
And IW strategic priority 3 – to balance overuse and conflicting uses of water resources and surface and groundwater basins that are transboundary in nature.

Project objectives and components

Overall Project Goal[4]:-

The goal is to address environmental, social and economic risks associated with the current unsustainable exploitation of NWSAS water resources with focus on sustainable agriculture practices and environmental

[3] See evaluation report produced in 2007 http://www.unep.org/eou/ReportsandPublications/ProjectEvaluationReportsandCommentaries/tabid/2315/Default.aspx

[4] From Log frame (appendix of project document).

management, in order to elaborate operational recommendations to the consultation Mechanism and water authorities of the three countries.

Long Term Objective/Impact:-
Equitable share and sustainable management of water and natural resources of the basin.

Project Objective:-
For the purpose of addressing the risks associated with unsustainable exploitation and management of groundwater resources in the North West Sahara Aquifer System (NWSAS), to formulate and initially implement a set of actions, with focus on sustainable agricultural practices and environmental management.

The five components and outcomes are listed in Table 1.

Table 1 Summary of Components and Outcomes

Component.	**Outcomes**
1. Exhaustive and representative socio-economic investigations	1.1 Detailed knowledge obtained of water consumption and needs production costs and yields, agricultural practices, linkage between water use and agriculture.
	1.2 To make operational recommendations relating to economic factor.
	1.3 Awareness raised and involvement of local stakeholders enhanced.
	1.4 Obtained knowledge incorporated into the sector plans and strategies.
2. Pilots of Demonstration	2.1 Proving through the six pilots, the feasibility of the improvement of the efficiency of the irrigation and the management of the quality of the grounds on the level of the exploitation.
	2.2 Capitalizing and distributing the results of the pilots at the local level during the project.
	2.3 Making operational recommendations relating to the effective and sustainable management of water and grounds on the level of the exploitation.
3. Information system: data bases and GIS	3.1 GIS based tools developed on the aquifer systems, taken into consideration use by decision makers for land use planning and management.
	3.2 A database integrating the raw data and the result of the assessment as part of the other compenents of the project widely accessed.
4. Mechanism of Concerted action.	4.1 A permanent body of coordinating action legitimated by the three countries is operational.
	4.2 The three countries eventually mainstream the recommendations issued by the MCA in their policies of sustainable management of water resource.
5. Project management and coordination	5.1 Project management and coordination established, including project monitoring and evaluation plan and cooperation mechanisms with other relevant projects/initiatives.
	5.2 Stakeholders fully involved.
	5.3 Communication strategy and project website.

Executing Arrangements

Implementing agency UNEP
Executing Agency : OSS

Steering Committee
A project Steering Committee (SC) will be established to oversee the implementation of the project. It will consist of representatives from: UNEP, OSS and the following

Funding Agencies : GEF/UNEP – FFEM – AWF

Country focal points : Algerian National Agency for Water resources (ANRH) Directorate General of Water resources, Tunisia (DGRE) and the General Water Authority (GWA) Libya.

International Institutions : UNESCO – SEMIDE – ESA

Regional Institutions : CRTEAN

The Steering Committee (SC) will be chaired by OSS. The SC was be responsible for providing overall guidance in the implementation of the project. Specific responsibilities of the SC were:-

1. Review and endorse the initial management plan for the project
2. Review and approve project workplans and annual workplans against budget allocations, as well as annual progress reports;
3. Approve the composition of the Working groups
4. assist in soliciting wide support for the project
5. Review project implementation process paying particular attention to :
    - Progress in implementation of the various project components
    - The monitoring and evaluation plan of the project
    - The quality of outputs produced
    - The sustainability of the project outcomes; and
    - The replicability of actions recommended by the projects
6. Review and approve the outline of, and subsequently the final reports arising from the project, including conclusions and recommendations particularly focusing on quality of outputs, and the information dissemination strategy, including its utility by potential users;
7. In order to enhance dissemination of project results and recommendations, the SC should review/monitor
    - Stakeholder buy-in to the project during implementation (by review of the Monitoring and Evaluation survey reports)
    - Whether results reach intended targets; and
    - The risks of failure

The SC was to meet at least annually, with extraordinary meetings called for by the SC Chairperson, when needed.

Project Coordinating Unit (PCU)
The Project Coordinating Unit (PCU) was to be based at OSS in Tunis, Tunisia. The unit was to be coordinated by OSS staff member. It would be responsible for project management and for chairing the Steering Committee.

The OSS, as executing agency will collaborate directly with three national focal points.

Information Dissemination

A website for dissemination and exchange of information will be developed and linked with other relevant programmes and initiatives. Monthly information letter will be established by PMU.

Project Cost and Financing

The estimated project costs at design with associated funding sources are presented in Table 2

Table 2. Estimated project cost

Cost to the GEF Trust Fund:			**US$**	**%**
Project			960,000	
Subtotal GEF			**960,000**	**29.76**
Co-financing				
	In-kind	**Cash**	**Total**	
FFEM	-	800000	800000	
AWF		780,480	780,480	
OSS		146,400	146,400	
Country contribution		539,200	539,200	
Sub-total Co-financing:			**2,266,080**	**70.24**
TOTAL PROJECT COST			**3,226,080**	**100.00**

Implementation Issues

Some delay in implementing project activities occurred as a result of political activity in the area (the Arab spring) and the project was extended by 1.5 years to enable all components to be carried out.

The first project steering committee was held in November 2009, with further SC meetings held in May 2011, April 2012 and May 2013. The socioeconomic surveys were carried out in 2011 and were completed by the time of the 2013 Project Implementation report. The report stated that the final year of the project would be largely used for further analysis, writing up of the socioeconomic survey and the development of the a Strategic Action Plan.

Pilot demonstration plots were launched in 2011 in Tunisia and Algeria and in 2012 in Libya.

A regional workshop was held in June 2012 to disseminate preliminary findings.

Though a mid term review was discussed in the project document, this was not carried out.

Objective and Scope of the Evaluation

In line with the UNEP Evaluation Policy[5], the UNEP Evaluation Manual[6] and the Guidelines for GEF Agencies in Conducting Terminal Evaluations[7], the Terminal Evaluation of the Project **"Reducing risks to the sustainable management of the North Western Sahara Aquifer System (NWSAS)"** is undertaken to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the GEF and their executing partners:– OSS and country focal points. Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation. It will focus on the following sets of **key questions**, based on the project's intended outcomes, which may be expanded by the consultants as deemed appropriate:

a) How successful has the project been in building participation of water users and other key stakeholders and what lessons can be drawn from the project experience?

b) Has the data base/GIS tools available to the Mechanism of Concerted action team and other stakeholders been enhanced by data collected by the project, and are these tools being used for planning, monitoring and evaluation of water use in the NWSAS.

[5] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx
[6] http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationManual/tabid/2314/language/en-US/Default.aspx
[7] http://www.thegef.org/gef/sites/thegef.org/files/documents/TE_guidelines7-31.pdf

c) Have the project activities resulted in insights into the socioeconomic aspects of water use in NWSAS which have guided decision making?

d) Have project activities resulted in greater awareness and involvement of key stakeholders at the national, regional and local levels?

e) How did the socioeconomic survey activities link to and enrich the pilot demonstration activities?

f) Were the pilot demonstration of interest and relevance to water users, and were the approaches demonstrated, replicated and disseminated more widely by water users?

g) Have the project activities resulted in the development of recommendations which are being implemented/incorporated in sector plans and strategies by the 'Mechanism for Concerted Action' , water authorities and other key stakeholders in the participating countries?

h) Are project activities likely to contribute to more equitable and sustainable management of water resources in the NWSAS?

i) What lessons can be learned from cross border work in a difficult political situation?

Overall Approach and Methods

The Terminal Evaluation of the Project "**Reducing Risks to the Sustainable management of the North Western Sahara Aquifer System (NWSAS)**" will be conducted by independent consultants under the overall responsibility and management of the UNEP Evaluation Office (Nairobi), in consultation with the UNEP GEF Coordination Office (Nairobi), and the UNEP Task Manager of the International Waters Section of UNEP's Division of Environmental Policy Implementation (DEPI).

It will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used to determine project achievements against the expected outputs, outcomes and impacts.

The findings of the evaluation will be based on the following:

(a) A **desk review** of project documents and others including, but not limited to:
- Relevant background documentation, inter alia UNEP and GEF policies, strategies and programmes;
- Project design documents; Annual Work Plans and Budgets or equivalent, revisions to the logical framework and project financing;
- Project reports such as progress and financial reports from the executing partners to the Project Coordination Unit (PCU) and from the PCU to UNEP; Steering Group meeting minutes; annual Project Implementation Reviews and relevant correspondence;
- Documentation related to project outputs;

(b) **Interviews** with:
- Project management and execution support at OSS Headquarters, Tunis.
- UNEP Task Manager and Fund Management Officer (Nairobi);
- Country focal points in Tunisia, Algeria and Libya
- Relevant staff of GEF Secretariat; and
- Representatives of other multilateral agencies
- Relevant stakeholder groups including representatives of water users at local, national and regional level.
- Key informants including: sociologue de l'eau and Grand Water Project.

(c) **Country visits**
The consultant will visit key stakeholders and project sites in Tunisia and Algeria.
If possible a 'wrap up workshop will be organised to share initial findings at the end of the field visit.

Key Evaluation principles

Evaluation findings and judgements should be based on **sound evidence and analysis**, clearly documented in the evaluation report. Information will be triangulated (i.e. verified from different sources) to the extent possible, and when verification was not possible, the single source will be mentioned. Analysis leading to evaluative judgements should always be clearly spelled out.

The evaluation will assess the project with respect to **a minimum set of evaluation criteria** grouped in four categories: (1) Attainment of objectives and planned results, which comprises the assessment of outputs achieved, relevance, effectiveness and efficiency and the review of outcomes towards impacts; (2) Sustainability and catalytic role, which focuses on financial, socio-political, institutional and ecological factors conditioning sustainability of project outcomes, and also assesses efforts and achievements in terms of replication and up-scaling of project lessons and good practices; (3) Processes affecting attainment of project results, which covers project preparation and readiness, implementation approach and management, stakeholder participation and public awareness, country ownership/driven-ness, project finance, UNEP supervision and backstopping, and project monitoring and evaluation systems; and (4) Complementarity with the UNEP strategies and programmes. The evaluation consultants can propose other evaluation criteria as deemed appropriate.

Ratings. All evaluation criteria will be rated on a six-point scale. However, complementarity of the project with the UNEP strategies and programmes is not rated. Annex 2 provides detailed guidance on how the different criteria should be rated and how ratings should be aggregated for the different evaluation criterion categories.

In attempting to attribute any outcomes and impacts to the project, the evaluators should consider the difference between *what has happened with and what would have happened without the project*. This implies that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. This also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluators, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

As this is a terminal evaluation, particular attention should be given to learning from the experience. Therefore, the "*Why?*" question should be at front of the consultants' minds all through the evaluation exercise. This means that the consultants needs to go beyond the assessment of "*what*" the project performance was, and make a serious effort to provide a deeper understanding of "*why*" the performance was as it was, i.e. of processes affecting attainment of project results (criteria under category 3). This should provide the basis for the lessons that can be drawn from the project. In fact, the usefulness of the evaluation will be determined to a large extent by the capacity of the consultants to explain "*why things happened*" as they happened and are likely to evolve in this or that direction, which goes well beyond the mere review of "*where things stand*" today.

Evaluation criteria

Strategic relevance

The evaluation will assess, in retrospect, whether the project's objectives and implementation strategies were consistent with: i) Sub-regional environmental issues and needs; ii) the UNEP mandate and policies at the time of design and implementation; and iii) the GEF Climate Change focal area, strategic priorities and operational programme(s).

It will also assess whether the project objectives were realistic, given the time and budget allocated to the project, the baseline situation and the institutional context in which the project was to operate.

Achievement of Outputs

The evaluation will assess, for each component, the project's success in producing the programmed results as presented in Table 2 above, both in quantity and quality, as well as their usefulness and timeliness. Briefly explain the degree of success of the project in achieving its different outputs, cross-referencing as needed to more detailed explanations provided under Section F (which covers the processes affecting attainment of project objectives). The achievements under the regional and national demonstration projects will receive particular attention.

Effectiveness: Attainment of Objectives and Planned Results

The evaluation will assess the extent to which the project's objectives were effectively achieved or are expected to be achieved.

The evaluation will reconstruct the Theory of Change (ToC) of the project based on a review of project documentation and stakeholder interviews. The ToC of a project depicts the causal pathways from project outputs (goods and services delivered by the project) over outcomes (changes resulting from the use made by key stakeholders of project outputs) towards impact (changes in environmental benefits and living conditions). The ToC will also depict any intermediate changes required between project outcomes and impact, called intermediate states. The ToC further defines the external factors that influence change along the pathways, whether one result can lead to the next. These external factors are either drivers (when the project has a certain level of control) or assumptions (when the project has no control).

The assessment of effectiveness will be structured in three sub-sections:

(a) Evaluation of the **achievement of direct outcomes as defined in the reconstructed ToC**. These are the first-level outcomes expected to be achieved as an immediate result of project outputs.

(b) Assessment of the **likelihood of impact** using a *Review of Outcomes to Impacts* (ROtI) approach as summarized in Annex 6 of the TORs. Appreciate to what extent the project has to date contributed, and is likely in the future to further contribute to changes in stakeholder behaviour as a result of the project's direct outcomes, and the likelihood of those changes in turn leading to changes in the natural resource base, benefits derived from the environment and human living conditions.

(c) Evaluation of the **achievement of the formal project overall objective, overall purpose, goals and component outcomes** using the project's own results statements as presented in original Logical Framework Matrix (logframe) and any later versions of the logframe. This sub-section will refer back where applicable to sub-sections (a) and (b) to avoid repetition in the report. To measure achievement, the evaluation will use as much as appropriate the indicators for achievement proposed in the logframe of the project, adding other relevant indicators as appropriate. Briefly explain what factors affected the project's success in achieving its objectives, cross-referencing as needed to more detailed explanations provided under Section F.

Sustainability and replication

Sustainability is understood as the probability of continued long-term project-derived results and impacts after the external project funding and assistance ends. The evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of benefits. Some of these factors might be direct results of the project while others will include contextual circumstances or developments that are not under control of the project but that may condition sustainability of benefits. The evaluation should ascertain to what extent follow-up work has been initiated and how project results will be sustained and enhanced over time. The reconstructed ToC will assist in the evaluation of sustainability.

Four aspects of sustainability will be addressed:

Socio-political sustainability.

Are there any social or political factors that may influence positively or negatively the sustenance of project results and progress towards impacts?

Is the level of ownership by the main national and regional stakeholders sufficient to allow for the project results to be sustained?

Are there sufficient government and stakeholder awareness, interests, commitment and incentives to execute, enforce and pursue the programmes, plans, agreements, monitoring systems etc. prepared and agreed upon under the project?

Financial resources.

To what extent are the continuation of project results and the eventual impact of the project dependent on continued financial support?

What is the likelihood that adequate financial resources[8] will be or will become available to implement the programmes, plans, agreements, monitoring systems etc. prepared and agreed upon under the project?

[8] Those resources can be from multiple sources, such as the public and private sectors, income generating activities, other development projects etc.

Are there any financial risks that may jeopardize sustenance of project results and onward progress towards impact?

Institutional framework.
To what extent is the sustenance of the results and onward progress towards impact dependent on issues relating to institutional frameworks and governance?

How robust are the institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. required to sustaining project results and to lead those to impact on human behaviour and environmental resources?

How effectively have project outputs been integrated into OSS planning processes.

Environmental sustainability.
Are there any environmental factors, positive or negative, that can influence the future flow of project benefits?
Are there any project outputs or higher level results that are likely to affect the environment, which, in turn, might affect sustainability of project benefits?
Are there any foreseeable negative environmental impacts that may occur as the project results are being up-scaled?

Catalytic role and replication.

The *catalytic role* of GEF-funded interventions is embodied in their approach of supporting the creation of an enabling environment and of investing in pilot activities which are innovative and showing how new approaches can work. UNEP and the GEF also aim to support activities that upscale new approaches to a national, regional or global level, with a view to achieve sustainable global environmental benefits. The evaluation will assess the catalytic role played by this project, namely to what extent the project has:

catalyzed behavioural changes in terms of use and application by the relevant stakeholders of: i) technologies and approaches show-cased by the demonstration projects; ii) strategic programmes and plans developed; and iii) assessment, monitoring and management systems established at local, national and regional level;
provided *incentives* (social, economic, market based, competencies etc.) to contribute to catalyzing changes in stakeholder behaviour;
contributed to *institutional changes.* An important aspect of the catalytic role of the project is its contribution to institutional uptake or mainstreaming of project-piloted approaches in the regional and national demonstration projects;
contributed to *policy changes* (on paper and in implementation of policy);
contributed to sustained follow-on financing (*catalytic financing*) from Governments, the GEF or other donors;
created opportunities for particular individuals or institutions ("*champions*") to catalyze change (without which the project would not have achieved all of its results).

Replication, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated (experiences are repeated and lessons applied in different geographic areas) or scaled up (experiences are repeated and lessons applied in the same geographic area but on a much larger scale and funded by other sources). The evaluation will assess the approach adopted by the project to promote replication effects and appreciate to what extent actual replication has already occurred or is likely to occur in the near future. What are the factors that may influence replication and scaling up of project experiences and lessons?

Efficiency

The evaluation will assess the cost-effectiveness and timeliness of project execution. It will describe any cost- or time-saving measures put in place in attempting to bring the project as far as possible in achieving its results within its programmed budget and (extended) time. It will also analyse how delays, if any, have affected project execution, costs and effectiveness. Wherever possible, costs and time over results ratios of the project will be compared with that of other similar interventions. The evaluation will give special attention to efforts by the project teams to make

use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency.

Factors and processes affecting project performance

Preparation and readiness. This criterion focusses on the quality of project design and preparation. Were project stakeholders[9] adequately identified? Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing agencies properly considered when the project was designed? Was the project document clear and realistic to enable effective and efficient implementation? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities) and enabling legislation assured? Were adequate project management arrangements in place? Were lessons from other relevant projects properly incorporated in the project design? What factors influenced the quality-at-entry of the project design, choice of partners, allocation of financial resources etc.? Were GEF environmental and social safeguards considered when the project was designed[10]?

Project implementation and management. This includes an analysis of implementation approaches used by the project, its management framework, the project's adaptation to changing conditions (adaptive management), the performance of the implementation arrangements and partnerships, relevance of changes in project design, and overall performance of project management. The evaluation will:

(a) Ascertain to what extent the project implementation mechanisms outlined in the project document have been followed and were effective in delivering project outputs and outcomes. Were pertinent adaptations made to the approaches originally proposed?
(b) Evaluate the effectiveness and efficiency of project management by OSS and how well the management was able to adapt to changes during the life of the project.
(c) Assess the role and performance of the units and committees established and the project execution arrangements at all levels.
(d) Assess the extent to which project management and country focal groups responded to direction and guidance provided by the Steering Committee and UNEP supervision recommendations.
(e) Identify operational and political / institutional problems and constraints that influenced the effective implementation of the project, and how the project partners tried to overcome these problems. How did the relationship between the project management team (OSS) and the country focal organisations develop?
(f) Assess the extent to which the project implementation met GEF environmental and social safeguards requirements.

Stakeholder participation and public awareness. The term stakeholder should be considered in the broadest sense, encompassing project partners, government institutions, private interest groups, local communities etc. The TOC analysis should assist the evaluators in identifying the key stakeholders and their respective roles, capabilities and motivations in each step of the causal pathway from activities to achievement of outputs and outcomes to impact. The assessment will look at three related and often overlapping processes: (1) information dissemination between stakeholders, (2) consultation between stakeholders, and (3) active engagement of stakeholders in project decision making and activities. The evaluation will specifically assess:

(a) the approach(es) used to identify and engage stakeholders in project design and implementation. What were the strengths and weaknesses of these approaches with respect to the project's objectives and the stakeholders' motivations and capacities? What was the achieved degree and effectiveness of collaboration and interactions between the various project partners and stakeholders during design and implementation of the project?
(b) the degree and effectiveness of any public awareness activities that were undertaken during the course of implementation of the project; or that are built into the assessment methods so that public awareness can be raised at the time the assessments will be conducted;

[9] Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the project. The term also applies to those potentially adversely affected by the project.
[10] http://www.thegef.org/gef/node/4562

(c) how the results of the project (strategic programmes and plans, monitoring and management systems, sub-regional agreements etc.) promote participation of stakeholders, including users, in decision making in the transport sector.

Country ownership and driven-ness. The evaluation will assess the performance of government agencies involved in the project:

(a) In how far have the participating government agencies assumed responsibility for the project and provided adequate support to project execution, including the degree of cooperation received from the various public institutions involved in the project and the timeliness of provision of counter-part funding to project activities?
(b) To what extent has the political and institutional framework of the participating countries been conducive to project performance?
(c) To what extent have the public entities promoted the participation of water users and their non-governmental organisations in the project?
(d) How responsive were the government partners to OSS coordination and guidance, and to UNEP supervision?

Financial planning and management. Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. The assessment will look at actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing. The evaluation will:

(a) Verify the application of proper standards (clarity, transparency, audit etc.) and timeliness of financial planning, management and reporting to ensure that sufficient and timely financial resources were available to the project and its partners;
(b) Appreciate other administrative processes such as recruitment of staff, procurement of goods and services (including consultants), preparation and negotiation of cooperation agreements etc. to the extent that these might have influenced project performance;
(c) Present to what extent co-financing has materialized as expected at project approval (see Table 1). Report country co-financing to the project overall, and to support project activities at the national level in particular. The evaluation will provide a breakdown of final actual costs and co-financing for the different project components (see tables in Annex 3).
(d) Describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective. Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector.

Analyse the effects on project performance of any irregularities in procurement, use of financial resources and human resource management, and the measures taken by OSS or UNEP to prevent such irregularities in the future. Appreciate whether the measures taken were adequate.

UNEP supervision and backstopping. The purpose of supervision is to verify the quality and timeliness of project execution in terms of finances, administration and achievement of outputs and outcomes, in order to identify and recommend ways to deal with problems which arise during project execution. Such problems may be related to project management but may also involve technical/institutional substantive issues in which UNEP has a major contribution to make. The evaluators should assess the effectiveness of supervision and administrative and financial support provided by UNEP including:

(a) The adequacy of project supervision plans, inputs and processes;
(b) The emphasis given to outcome monitoring (results-based project management);
(c) The realism and candour of project reporting and ratings (i.e. are PIR ratings an accurate reflection of the project realities and risks);
(d) The quality of documentation of project supervision activities; and
(e) Financial, administrative and other fiduciary aspects of project implementation supervision.

Monitoring and evaluation. The evaluation will include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The evaluation will appreciate how information generated by the M&E system during project implementation was used to adapt and improve project execution, achievement of outcomes and ensuring sustainability. M&E is assessed on three levels:

(a) *M&E Design*. Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified. The evaluators should use the following questions to help assess the M&E design aspects:

- Quality of the project logframe (original and possible updates) as a planning and monitoring instrument; analyse, compare and verify correspondence between the original logframe in the Project Document, possible revised logframes and the logframe used in Project Implementation Review reports to report progress towards achieving project objectives;
- SMART-ness of indicators: Are there specific indicators in the logframe for each of the project objectives? Are the indicators measurable, attainable (realistic) and relevant to the objectives? Are the indicators time-bound?
- Adequacy of baseline information: To what extent has baseline information on performance indicators been collected and presented in a clear manner? Was the methodology for the baseline data collection explicit and reliable?
- Arrangements for monitoring: Have the responsibilities for M&E activities been clearly defined? Were the data sources and data collection instruments appropriate? Was the frequency of various monitoring activities specified and adequate? In how far were project users involved in monitoring?
- Arrangements for evaluation: Have specific targets been specified for project outputs? Has the desired level of achievement been specified for all indicators of objectives and outcomes? Were there adequate provisions in the legal instruments binding project partners to fully collaborate in evaluations?
- Budgeting and funding for M&E activities: Determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

(b) *M&E Plan Implementation*. The evaluation will verify that:

- the M&E system was operational and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period;
- annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings;
- the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs.

(c) *Use of GEF Tracking Tools*. These are portfolio monitoring tools intended to roll up indicators from the individual project level to the portfolio level and track overall portfolio performance in focal areas. Each focal area has developed its own tracking tool[11] to meet its unique needs. Agencies are requested to fill out at CEO Endorsement (or CEO approval for MSPs) and submit these tools again for projects at mid-term and project completion. The evaluation will verify whether UNEP has duly completed the relevant tracking tool for this project, and whether the information provided is accurate.

Complementarities with UNEP strategies and programmes

UNEP aims to undertake GEF funded projects that are aligned with its own strategies. The evaluation should present a brief narrative on the following issues:

(a) *Linkage to UNEP's Expected Accomplishments and POW 2010-2011*. The UNEP MTS specifies desired results in six thematic focal areas. The desired results are termed Expected Accomplishments. Using the completed ToC/ROtI analysis, the evaluation should comment on whether the project makes a tangible contribution to any of the Expected Accomplishments specified in the UNEP MTS. The

[11] http://www.thegef.org/gef/tracking_tools

magnitude and extent of any contributions and the causal linkages should be fully described. Whilst it is recognised that UNEP GEF projects designed prior to the production of the UNEP Medium Term Strategy 2010-2013 (MTS)[12] would not necessarily be aligned with the Expected Accomplishments articulated in those documents, complementarities may still exist and it is still useful to know whether these projects remain aligned to the current MTS.

(b) *Alignment with the Bali Strategic Plan (BSP)*[13]. The outcomes and achievements of the project should be briefly discussed in relation to the objectives of the UNEP BSP.

(c) *Gender*. Ascertain to what extent project design, implementation and monitoring have taken into consideration: (i) possible gender inequalities in access to and the control over natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; and (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation. Appreciate whether the intervention is likely to have any lasting differential impacts on gender equality and the relationship between women and the environment. To what extent do unresolved gender inequalities affect sustainability of project benefits?

(d) *South-South Cooperation.* This is regarded as the exchange of resources, technology, and knowledge between developing countries. Briefly describe any aspects of the project that could be considered as examples of South-South Cooperation.

The Evaluation team

For this evaluation, the evaluation team will consist of a single consultant who should be bilingual in French and English and should have experience in project evaluation and a good knowledge of land and water management and irrigation technologies. Experience in design and implementation of socioeconomic research and demonstration activities and of participatory approaches would be desirable, as would experience of working in the project area and of transboundary water management issues. Supported by the Evaluation office, the consultant will undertake data collection and analysis, and preparation of the evaluation report. He/She will ensure that all evaluation criteria are adequately covered.

By undersigning the service contract with UNEP/UNON, the consultant certifies that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units.

Evaluation Deliverables and Review Procedures

The evaluator will prepare an **inception report** (see Annex 1(a) of TORs for Inception Report outline) containing a thorough review of the project context, project design quality, a draft reconstructed Theory of Change of the project, the evaluation framework and a tentative evaluation schedule.

The review of design quality will cover the following aspects (see Annex 7 for the detailed project design assessment matrix):

- Strategic relevance of the project
- Preparation and readiness (see paragraph 25);
- Financial planning (see paragraph 30);
- M&E design (see paragraph 33(a));
- Complementarities with UNEP strategies and programmes (see paragraph 34);
- Sustainability considerations and measures planned to promote replication and upscaling (see paragraph 23).

The inception report will also present a draft, desk-based reconstructed Theory of Change of the project. It is vital to reconstruct the ToC *before* the most of the data collection (review of reports, in-depth interviews, observations on the ground etc.) is done, because the ToC will define which direct outcomes, drivers and assumptions of the project need to be assessed and measured to allow adequate data collection for the evaluation of project effectiveness, likelihood of impact and sustainability.

[12] http://www.unep.org/PDF/FinalMTSGCSS-X-8.pdf
[13] http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf

The evaluation framework will present in further detail the evaluation questions under each criterion with their respective indicators and data sources. The evaluation framework should summarize the information available from project documentation against each of the main evaluation parameters. Any gaps in information should be identified and methods for additional data collection, verification and analysis should be specified.

The inception report will also present a tentative schedule for the overall evaluation process, including a draft programme for the country visit and tentative list of people/institutions to be interviewed.

The inception report will be submitted for review and approval by the Evaluation Office before the evaluation conducts fieldwork.

The main evaluation report should be brief (no longer than 35 pages – excluding the executive summary and annexes), to the point and written in plain English. The evaluator will deliver a high quality report in English by the end of the assignment. The project will arrange for the translation of the executive summary and the conclusions, lessons learned and recommendations section in French. The report will follow the annotated Table of Contents outlined in Annex 1. It must explain the purpose of the evaluation, exactly what was evaluated and the methods used (with their limitations). The report will present evidence-based and balanced findings, consequent conclusions, lessons and recommendations, which will be cross-referenced to each other. The report should be presented in a way that makes the information accessible and comprehensible. Any dissident views in response to evaluation findings will be appended in footnote or annex as appropriate. To avoid repetitions in the report, the authors will use numbered paragraphs and make cross-references where possible.

The consultant will also produce a two page bulletin summarising the key findings of the evaluation. If possible photos should be included.

Review of the draft evaluation report. The evaluator will submit the zero draft report latest two weeks after the country visit has been completed to the UNEP EO and revise the draft following the comments and suggestions made by the EO. Once a draft of adequate quality has been accepted, the EO will share this first draft report with the UNEP Task Manager, who will ensure that the report does not contain any blatant factual errors. The UNEP Task Manager will then forward the first draft report to the other project stakeholders, in particular OSS, FFEM, AWF and the project country focal points and the relevant GEF focal point for review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. It is also very important that stakeholders provide feedback on the proposed recommendations and lessons. Comments would be expected within two weeks after the draft report has been shared. Any comments or responses to the draft report will be sent to the UNEP EO for collation. The EO will provide the comments to the evaluator for consideration in preparing the final draft report.

The evaluator will submit the final draft report no later than 2 weeks after reception of stakeholder comments. The evaluator will prepare a **response to comments**, listing those comments not or only partially accepted by them that could therefore not or only partially be accommodated in the final report. They will explain why those comments have not or only partially been accepted, providing evidence as required. This response to comments will be shared by the EO with the interested stakeholders to ensure full transparency.

Submission of the final Terminal Evaluation report. The final report shall be submitted by Email to the Head of the Evaluation Office, who will share the report with the Director, UNEP/GEF Coordination Office and the UNEP/DEPI Task Manager. The Evaluation Office will also transmit the final report to the GEF Evaluation Office.

The final evaluation report will be published on the UNEP Evaluation Office web-site www.unep.org/eou. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

As per usual practice, the UNEP EO will prepare a **quality assessment** of the first draft and final draft report, which is a tool for providing structured feedback to the evaluation consultants. The quality of the report will be assessed and rated against the criteria specified in Annex 4.

The UNEP Evaluation Office will assess the ratings in the final evaluation report based on a careful review of the evidence collated by the evaluation consultant and the internal consistency of the report. Where there are differences of opinion between the evaluator and UNEP Evaluation Office on project ratings, both viewpoints will be clearly presented in the final report. The UNEP Evaluation Office ratings are the final ratings that will be submitted to the GEF Office of Evaluation.

Logistical arrangement

This Terminal Evaluation will be undertaken by an independent evaluation consultant contracted by the UNEP Evaluation Office. The consultant will work under the overall responsibility of the UNEP Evaluation Office and will consult with the EO on any procedural and methodological matters related to the evaluation. It is, however, the consultant's individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize field visits, and any other logistical matters related to the assignment. The UNEP Task Manager and project coordination office will, where possible, provide logistical support (introductions, meetings, transport etc.) for the country visit, allowing the consultants to conduct the evaluation as efficiently and independently as possible.

Schedule of the evaluation

Tentative schedule for the evaluation

Milestone	**Deadline**
Consultant contracts signed	March 2015
Inception Report	April
Field visits	April/May
Zero Draft Report	June
First Draft Report shared with project manager	June
First Draft Report shared with stakeholders	July
Final Report	September

The consultant will be hired under an individual Special Service Agreement (SSA). There are two options for contract and payment: lumpsum or "fees only".

Lumpsum: The contract covers both fees and expenses such as travel, per diem (DSA) and incidental expenses which are estimated in advance. The consultants will receive an initial payment covering estimated expenses upon signature of the contract.

Fee only: The contract stipulates consultant fees only. Air tickets will be purchased by UNEP and 75% of the DSA for each authorised travel mission will be paid up front. Local in-country travel and communication costs will be reimbursed on the production of acceptable receipts. Terminal expenses and residual DSA entitlements (25%) will be paid after mission completion.

The payment schedule for the consultant will be linked to the acceptance of the key evaluation deliverables by the Evaluation Office:

- Final inception report: 25 percent of agreed total fee
- First draft main evaluation report: 45 percent of agreed total fee
- Final main evaluation report: 30 percent of agreed total fee

In case the consultants are not able to provide the deliverables in accordance with these TORs, in line with the expected quality standards by the UNEP Evaluation Office, payment may be withheld at the discretion of the Head of the Evaluation Office until the consultants have improved the deliverables to meet UNEP's quality standards.

If the consultants fail to submit a satisfactory final product to UNEP in a timely manner, i.e. within one month after the end date of their contract, the Evaluation Office reserves the right to employ additional human resources to finalize the report, and to reduce the consultants' fees by an amount equal to the additional costs borne by the Evaluation Office to bring the report up to standard.

Annex 3. Evaluation program

People interviewed for the evaluation in Algeria, May 2015

Mr. Ansari Tara, Directeur, ANRH, Adrar, Wilaya d'Adrar, Algérie; email : ans1967@gmail.com

Mr. Belkacem Abdous, Consultant expert en informatique, , Alger; email: babdous@yahoo.fr

Mr. Hafouda Lamine, Chercheur, Institut National de Recherche Agricole (INRA), Touggourt, Algérie; email : hafoudalamine@yahoo.fr

Mr. Moulti Abdelouhab, Chef de Service Hydraulique Agricole – Pédalogie, ANRH, Alger; email: moulti_abdelouhab@yahoo.fr

Mr. Rachid Djettou, Chef de Service, Direction des Ressources en Eau Souterraines, ANRH, Alger; email: rachiddjettou@yahoo.fr

Mr. Rachid Taibi, Chargé d'Études et de Synthèse, Cabinet du Ministre, Ministère des Ressources en Eau, Alger; email : taibirachid01@gmail.com

Mr. Ramdane Mohamed, Directeur Général, ANRH, Alger; email : ramdanemo@yahoo.fr

Mr. Tahar Amrane, Chef de Service, Direction des Ressources en Eau Souterraines, ANRH, Alger; email : harmoun2007@gmail.com

M. Abdelnaceur Kheireddine, Directeur, Direction des Zones Arides et Semi-Arides, Ministère de l'Agriculture, Alger; email : abdenaceurk@yahoo.fr

Mr. Zahrouna Abderezak Directeur Régional, ANRH, Ouargla, Algérie; email : zahrou2013@gmail.com

People interviewed for the evaluation in Tunisia, May 2015

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Mr Bechir Dédi, Commissaire Régional du Développement Agricole, CRDA, Ministère de l'Agriculture, Gabès, Tunisie; Fax: 00216 75 290668

Dr. Abdel Kader Bouslama, Consultant expert en informatique, Tunis; email : bouslama_abdelkader@yahoo.fr

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Djamel Latrech, Chargé du projet SASS, Programme Eau, OSS, Tunis; email: djamel.latrech@oss.org.tn

Dr. Frigui Hassen Lofti, Directeur Général des Ressources en Eau, DGRE, Ministère de l'Agriculture, Tunis; email : hfrigui@yahoo.fr

Dr. Mohamed Salah Matoussi, Économiste et consultant expert chargé des enquêtes socio-économiques, Tunis; email : msmat@gnet.tn

Dr. Mohamedou Baba Sy, En Charge des BD et SIG et Modélisation, Programme Eau, OSS, Tunis; email : lamine.babasy@oss.org.tn

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People contacted / interviewed for the evaluation in Libya, May 2015

Mr Rashid El Futaisi, Advisor, General Water Authority, Tripoli; **email: rashid_elfutaisi@yahoo.com**

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Ms. Elisa Calcaterra, Evaluation Officer, UNEP, Nairobi; email : elisa.calcaterra@unep.org

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Annex 5. Summary co-finance information and a statement of project expenditure by activity

See Tables 3 – 5, pages 37-38

Annex 6. Short CV of the Consultant

Howard Macdonald Stewart, 5346 Chrisman Road, Denman Island, B.C. V0R 1T0 CANADA
Phone: (1 250 2327) or (1 604) 222-3484, e-mail: howard.m.stewart@gmail.com

Mr. Stewart has over thirty years of experience working in Asia, Africa, the Middle East, Europe and the Americas. Most recently he has led evaluations of UNEP's global UNDAF projects, Viet Nam's UN-REDD programme and UNDP development results in Djibouti. Other international work since 2008 has included reviews and advice on final evaluations of Global Environment Facility (GEF) projects, thematic evaluations by the United Nations Development Programme (UNDP), a donors' evaluation of the United Nations Environment Programme (UNEP) and the development of UN staff environmental training. He also taught courses in 'Environment and Sustainability' and 'Environmental Impact Assessment' at the Geography Department of the University of British Columbia while completing a PhD (2008-12).

From 2006 to 2008 Mr. Stewart was an advisor in the UNDP's Evaluation Office in New York where he participated in the design, implementation and review of evaluations of international environmental programmes. These included evaluations of UNDP's overall environmental programming since 2002 and of the GEF's global Small Grants Programme, for which he led a number of country level studies. He also developed and implemented a system for reviewing final evaluations of UNDP-GEF financed projects and managed the assessment of UNDP's results in Rwanda.

Between 1990 and 2006, Mr. Stewart worked as an independent analyst based in Vancouver. He worked with many local and national governments and international agencies, communities, NGOs, and industries, helping them plan, carry out, monitor and evaluate their own practical policies, plans and strategies for sustainable development.

Mr. Stewart spent the 1980's working with the Canadian International Development Agency (CIDA) where he acted as environmental advisor to CIDA's programmes in Latin America and francophone Africa. Prior to this he planned and managed Canadian participation in international co-operation projects, at both community and national levels, in West and Central Africa, in the agriculture, forestry, water and energy sectors.

From 1975 to 1981 Mr. Stewart worked as a researcher in forest ecology in Central America, a land planning officer with a World Bank agricultural programme in West Africa and an environmental consultant to western Canada's mining and resource industries. He also worked with an early private sector eco-tourism initiative in the Danube Basin of central Europe.

Skills & Areas of Expertise

- Leadership, co-ordination, and assessment of policy, programme and project evaluations
- Capacity development for sustainable development
- Environmental assessment & mitigation
- Policy analysis and development
- Climate change adaptation, including sustainable natural resource & water planning & management
- Planning and training workshop preparation, presentation and evaluation
- Policy, programme and project planning, monitoring and evaluation
- Local and national level sustainable development strategies
- Fluent in English, French, Spanish and Krio; functional in German; basic Portuguese and Russian.

Selected Publications

- Stewart, H. 2014. Evaluation and Reconciliation of Global Environmental Benefits with Local Development in: Juha Uitto, (ed.) "Evaluating Global Environmental Benefits and Local Development". New York: Routledge: 37-42.
- Stewart, H. 2014. Five easy pieces on the Strait of Georgia – Reflections on the historical geography of the North Salish Sea. On-line.
- Stewart, H. ongoing since 2011. Numerous book reviews in "BC Studies" journal, from No. 170 onwards.
- Stewart, H., J. Uitto & M. Wells. 2009. Contributing to Global Benefits or Supporting Local Sustainable Development: Evidence from a Global Evaluation of UNDP's Program; in: Evaluating Climate Change and Development. Eds. O. Feinstein and R. D.Van den Berg. New Brunswick NJ: Transaction: 151-170.
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- Stewart, H. 1997. "Capacity development for sustainable development since Rio - the industrialised countries". in: "The Road from Rio" series. United Nations. New York.
- Stewart, H. 1997. "Synergy in Capacity Building by the Climate Change, Bio-Diversity and Desertification Conventions and the Forestry Principles." A discussion paper for a Global Environment Facility strategy workshop. United Nations. New York.
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- Stewart, H. 1984. "Environmental management problems of agricultural development in West Africa". Presented to Annual Meeting of the Canadian Association of Geographers.
- Stewart, H. 1990. "Canadian environmental standards in the global context". Presented to Globe '90 Conference. Vancouver.
- Stewart, H. and M. C. Kellman. 1982. "Nutrient accumulation by Pinus caribaea in its native savannah habitat". In: Plant and Soil, 69, 105 - 118. Amsterdam.

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- Dr. Juha Uitto, Head of Independent Evaluation Office, GEF, Washington, DC email: gefevaluation@thegef.org
- Ms. Anita Nirody, Resident Representative, UN-Egypt, Cairo email: anita.nirody@undp.org
- Ms. Hélène Giroux, Director, South America Division, Americas Branch, CIDA / ACDI, Gatineau, Quebec email: helene_giroux@acdi-cida.gc.ca
- Dr. Graeme Wynn, Professor, Department of Geography, UBC, Vancouver email: graeme.wynn@geog.ubc.ca

Education and awards:

- PhD, Environmental History / Historical Geography, University of British Columbia, 2008-2014 (Lewis Robinson Memorial Graduate Scholarship, 2010)
- M.Sc., Applied Physical Geography, York University, 1978-1980 (Ontario Government Graduate Scholarships, 1979, 1980)
- B.A., Geography, Simon Fraser University, 1969-1975 (B.C. Government First Class Scholarships, Gordon Shrum Entrance Scholarship)

Personal

- Born 22 December 1952 in Powell River, Canada; Canadian citizen
- Married, two children born 1980 and 1983

International experience and clients

Mr. Stewart has worked in over seventy countries including...

Asia: Indonesia, Thailand, Malaysia, Laos, Cambodia, Viet Nam, the Philippines, Mongolia, Kazakhstan, Kyrgyzstan, Uzbekistan, Nepal, Pakistan, Sri Lanka, India
Middle East/North Africa: Yemen, Syria, Lebanon, Jordan, Egypt, Sudan, Djibouti, Morocco, Algeria, Tunisia
Sub-Saharan Africa: Rwanda, Burundi, Uganda, Kenya, Mozambique, Zambia, Ivory Coast, Ghana, Sierra Leone, The Gambia, Senegal, Mali, Mauritania, Burkina Faso, Niger, Nigeria, Cameroon
The Americas: Peru, Bolivia, Chile, Brazil, Ecuador, Colombia, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, Belize, , Mexico, Trinidad & Tobago, Barbados, Haiti, Jamaica, Canada, US
Europe: Russia, Estonia, Latvia, Lithuania, Hungary, Serbia, Albania, Macedonia, Bulgaria, Romania, Austria, Germany, UK

Clients have included:

- United Nations Environment Programme (UNEP): Regional Support Office
- United Nations Development Programme (UNDP): Evaluation Office; Capacity 21 Initiative; Regional Bureaux for Asia, Latin America and the Caribbean, C & E Europe and CIS, Arab States, Africa; Evaluation Office, Global Environment Facility; UNDP regional office in Bratislava (C & E Europe and CIS); UN country offices in Russia, Latvia, Kazakhstan, Albania, Mozambique, Zambia, Surinam
- Global Environment Facility (GEF): GEF Secretariat, Monitoring and Evaluation Office
- The World Bank: Regional Offices for East Asia & Pacific and Africa
- United Nation - REDD (Reducing Emissions from Deforestation and Forest Degradation) Programme - Global Office, Geneva
- Canadian International Development Agency (CIDA): Americas Branch, Asia Branch, Africa - Middle East Branch, Policy Branch, Training Division
- Institute for Development Studies, University of Sussex, UK
- The Aga Khan Foundation of Canada
- Nile Basin Initiative (NBI): Nile Equatorial Lakes Strategic Action Programme
- North-South Institute: Canada-Latin America Forum
- International Development Research Corporation (IDRC): International Model Forest Network Secretariat
- Environment Canada: Fraser Basin Management Programme
- Government of British Columbia: Land and Resource Management Programme
- Secretariat of the Convention on Bio-diversity
- International Plant Genetic Research Institute (IPGRI)
- Canadian Department of Foreign Affairs and International Trade (DFAIT): Bureau of Assistance for Central and Eastern Europe

Experience in evaluation and monitoring

- Carrying out participatory evaluation of UNEP's global UNDAF projects (2014-15)
- Led evaluation of the national UN-REDD programme in Viet Nam (UN-REDD, 2012-13)
- Led evaluation of UNDP's development results in Djibouti, 2003-2011 (UNDP, 2011).
- Advisor to review of UNEP by the Multilateral Organisation Performance Assessment Network (MOPAN) (Universalia, 2011)
- Advisor to UNDP's thematic / global evaluation of their performance working at the 'poverty – environment nexus' (UNDP, 2009-2010).
- Analytic reviews of final evaluation reports submitted for UNDP projects financed by the Global Environmental Facility (UNDP, 2009-2011 inclusive)
- Evaluation advisor at UNDP's Evaluation Office, where duties included: quality control of evaluations carried out for UNDP-GEF projects; participation in joint evaluation with the Global Environment Facility of the UNDP's global "Small Grants Programme" and the evaluation of UNDP's overall environmental programming since 2002; led country level studies related to this work and other evaluation studies in Macedonia, Pakistan, Rwanda, Kenya, Burkina Faso. (UNDP, 2006-2008)
- Led evaluation of the results of UNDP's national programme of support for sustainable development by the Government of Kazakhstan, including support for integrated water resource management, energy efficiency and alternative energy, improved waste management, local and national sustainable development strategies, national council for sustainable development (UNDP, 2006).
- Led an international team carrying out an evaluation of the REFORMIN project in Bolivia, a bilateral project supporting improved environmental management, conflict resolution and policy formulation in Bolivia's mining sector (CIDA, 2005).
- Led an international team carrying out a mid-term evaluation of the second regional co-operation framework of the United Nations Development Programme in Europe and the CIS and the development support functions of the Bratislava Regional Centre; included review of programmes in Slovakia, Kyrgyzstan and Lithuania (UNDP, 2004).
- Led a regional team from Tunisia, Algeria and Morocco carrying out the mid-term evaluation of the "Maghreb Date Palm Project" and prepared the synthesis regional evaluation report, in English and French (IPGRI, UNDP-GEF, 2003 - 4).
- Supported team of national specialists in defining appropriate methods and tools for participatory poverty and development monitoring at the community level in Albania (Government of Albania / UNDP, 2002 - 3).
- Head of evaluation team, Water Sector Support Programme: Led a Mozambican team of specialists evaluating a programme providing leadership in policy and strategy development in Mozambique's water sector; outlined future options (Government of Mozambique / UNDP, 2001).
- Prepared an analytic review of the global experience of UNDP-GEF and Capacity 21 in applying participatory monitoring and evaluation approaches (UNDP, 2001).
- Senior evaluator, global evaluation of implementation of the Bio-diversity Convention. Participated in evaluation of the implementation of the Convention on Bio-Diversity, including review of Russia's national bio-diversity programme (Convention on Bio-diversity Secretariat, 2001).
- Supporting monitoring national programmes to develop capacity for sustainable development in C/E Europe and Asia. Participated in national monitoring and review exercises in Estonia, Bulgaria, Russia, Philippines, Mongolia, Nepal, Bolivia & Lebanon (UNDP-Capacity 21, 1994 - 2001).
- Led multi-disciplinary, international teams evaluating programmes in Niger and Burkina Faso designed to develop practical strategies for sustainable development through broad popular participation in all regions of each country (Capacity 21 / UNDP, 1999-2000).

- Led a multi-disciplinary Indo-Canadian consultant team carrying out a mid-term review of a Canadian bilateral co-operation project in support of the Environmental Management Division of the Confederation of Indian Industries (CII / CIDA, 1999).
- Participated in evaluation of Syria's Capacity 21 programme, involving the development of a National Environmental Action Plan, executed by the World Bank (Capacity 21, 1998).
- Led an international team, in collaboration with Resource Futures International of Ottawa, carrying out an "evaluation of lessons learned from effective and less effective projects" for the Global Environment Facility; including reviews of Dana and Azraq projects in Jordan (GEF, 1997).
- Led an international team evaluating the "Proteccion Ecologia y Rescate Cultural" Project in Honduras, a complex mix of indigenous land titling, small-scale community development projects and protected area management (UNDP-Capacity 21, 1996).
- Evaluated the environmental and socio-economic effects, including gender effects, of the Arenal Conservation and Development Project, a major protected watershed and buffer zone project in Costa Rica; recommended design changes for a second phase of the project (CIDA, 1995).
- Developed a methodology and strategy for rigorous, participatory monitoring of national capacity development programmes, with a global team including the Sustainable Development Policy Institute (Islamabad), the Network for Environment and Development in Africa and the International Institute for Environment and Development (London), (UNDP, 1994 - 95).
- Identified indicators, pilot communities and methodology for monitoring the economic, social and environmental sustainability of development in British Columbia's Fraser River Basin, most heavily populated river basin of western Canada (Environment Canada, 1993).

Annex 7: UNEP Evaluation Quality Assessment

Evaluation of the Project: NWSAS

All UNEP evaluations are subject to a quality assessment by the Evaluation Office. The quality assessment is used as a tool for providing structured feedback to the evaluation consultants.

The quality of both the draft and final evaluation report is assessed and rated against the following criteria:

	UNEP Evaluation Office Comments	Draft Report Rating	Final Report Rating
Substantive report quality criteria			
A. **Quality of the Executive Summary**: Does the executive summary present the main findings of the report for each evaluation criterion and a good summary of recommendations and lessons learned? (Executive Summary not required for zero draft)	Final report: Good summary		6
B. **Project context and project description**: Does the report present an up-to-date description of the socio-economic, political, institutional and environmental context of the project, including the issues that the project is trying to address, their root causes and consequences on the environment and human well-being? Are any changes since the time of project design highlighted? Is all essential information about the project clearly presented in the report (objectives, target groups, institutional arrangements, budget, changes in design since approval etc.)?	Draft report: Good overview even though there was limited possibility to visit site because of logistics and safety. Final report: Same as above	5	5
C. **Strategic relevance**: Does the report present a well-reasoned, complete and evidence-based assessment of strategic relevance of the intervention in terms of relevance of the project to global, regional and national environmental issues and needs, and UNEP strategies and programmes?	Draft report: Very good analysis based on info provided by EOU and TM Final report: Same as above	5	5
D. **Achievement of outputs**: Does the	Draft report: Detailed assessment	5	5

	report present a well-reasoned, complete and evidence-based assessment of outputs delivered by the intervention (including their quality)?	Final report: Same as above		
E.	**Presentation of Theory of Change**: Is the Theory of Change of the intervention clearly presented? Are causal pathways logical and complete (including drivers, assumptions and key actors)?	Draft report: ToC reconstruction of good quality Final report: Same as above	4	5
F.	**Effectiveness - Attainment of project objectives and results**: Does the report present a well-reasoned, complete and evidence-based assessment of the achievement of the relevant outcomes and project objectives?	Draft report: Yes, good assessment Final report: Same as above	5	5
G.	**Sustainability and replication**: Does the report present a well-reasoned and evidence-based assessment of sustainability of outcomes and replication / catalytic effects?	Draft report: Yes all dimensions considered Final report: Same as above	5	5
H.	**Efficiency**: Does the report present a well-reasoned, complete and evidence-based assessment of efficiency? Does the report present any comparison with similar interventions?	Draft report: Yes, but no comparisons Final report: Same as above	5	5
I.	**Factors affecting project performance**: Does the report present a well-reasoned, complete and evidence-based assessment of all factors affecting project performance? In particular, does the report include the actual project costs (total and per activity) and actual co-financing used; and an assessment of the quality of the project M&E system and its use for project management?	Draft report: Good analysis Final report: Same as above	5	5
J.	**Quality of the conclusions:** Do the conclusions highlight the main strengths and weaknesses of the project, and connect those in a compelling story line?	Draft report: Conclusions highlight key points Final report: Same as above	5	5
K.	**Quality and utility of the**	Draft report: R are targeted	5	5

recommendations: Are recommendations based on explicit evaluation findings? Do recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?)'. Can they be implemented?	Final report: Same as above		
L. **Quality and utility of the lessons**: Are lessons based on explicit evaluation findings? Do they suggest prescriptive action? Do they specify in which contexts they are applicable?	Draft report: Lessons are short but useful Final report: Same as above	5	5
Report structure quality criteria			
M. **Structure and clarity of the report**: Does the report structure follow EO guidelines? Are all requested Annexes included?	Draft report: Very good structure, only a few points to further clarify after careful revision by PM Final report: Clarifications added and comments addressed in detail	5	6
N. **Evaluation methods and information sources**: Are evaluation methods and information sources clearly described? Are data collection methods, the triangulation / verification approach, details of stakeholder consultations provided? Are the limitations of evaluation methods and information sources described?	Draft report: Yes good description Final report: Same as above	5	5
O. **Quality of writing**: Was the report well written? (clear English language and grammar)	Draft report: Good writing style Final report: Same as above	5	5
P. **Report formatting**: Does the report follow EO guidelines using headings, numbered paragraphs etc.	Draft report: Yes well layouted and formatted report Final report: Same as above	6	6
	OVERALL REPORT QUALITY RATING	5	5.2

The quality of the <u>evaluation process</u> is assessed at the end of the evaluation and rated against the following criteria:

	UNEP Evaluation Office Comments		Rating
Evaluation process quality criteria			
Q. **Preparation:** Was the evaluation budget agreed and approved by the EO? Was inception report delivered and approved prior to commencing	Yes		6

	any travel?			
R.	**Timeliness:** Was a TE initiated within the period of six months before or after project completion? Was an MTE initiated within a six month period prior to the project's mid-point? Were all deadlines set in the ToR respected?	Yes except for extended period required to receive comments from PM and previous PM		5
S.	**Project's support:** Did the project make available all required documents? Was adequate support provided to the evaluator(s) in planning and conducting evaluation missions?	Yes. Although security concerns limited the onsite visits		5
T.	**Recommendations:** Was an implementation plan for the evaluation recommendations prepared? Was the implementation plan adequately communicated to the project?	Yes		6
U.	**Quality assurance:** Was the evaluation peer-reviewed? Was the quality of the draft report checked by the evaluation manager and peer reviewer prior to dissemination to stakeholders for comments? Did EO complete an assessment of the quality of the final report?	Yes		5
V.	**Transparency:** Were the draft ToR and evaluation report circulated to all key stakeholders for comments? Was the draft evaluation report sent directly to EO? Were all comments to the draft evaluation report sent directly to the EO and did EO share all comments with the commentators? Did the evaluator(s) prepare a response to all comments?	Yes		5
W.	**Participatory approach:** Was close communication to the EO and project maintained throughout the evaluation? Were evaluation findings, lessons and recommendations adequately communicated?	Yes		5
X.	**Independence:** Was the final	Yes		6

selection of the evaluator(s) made by EO? Were possible conflicts of interest of the selected evaluator(s) appraised?			
OVERALL PROCESS RATING: 5.4			

Rating system for quality of evaluation reports

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1

The overall quality of the evaluation report is calculated by taking the mean score of all rated quality criteria.