



United Nations Environment Programme

Terminal Evaluation of Project “Support for Environmental Management Of the Iraqi Marshlands”



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Acknowledgements

This is not really the work of the Terminal Evaluation Team but that of all the staff and people connected with the Iraqi Marshlands Project who gave freely of their time and ideas to make the evaluation process a success. There are far too many people to mention by name – and hopefully everyone who contributed is included in the lists of names annexed to this report – but special mention must be made of the Project Coordinator Manager, Chizuru Aoki, who gave her time to help PE track down answers to, or point him in the right direction for, every question asked even after she had left UNEP and moved to the GEF. Similarly, the National Coordinator, Ali Al-Lami gave freely of his time to help AB to answer questions and assist in coordinating the in-country logistics. Our sincere thanks go to them both. Furthermore, the evaluation process has not proved easy and problems in mid-2010 meant the UNEP Evaluation Office to find a new national consultant. This in turn led to yet further delays because of PE's other commitments. However, through it all, Tiina Piironen has helped us both with great patience and prompt responses to our needs.

Following completion of the Draft Report on 14th February 2011, review comments were received from the DTIE and the UNEP Evaluation Office on 14th March 2011. Additional information was provided by 1st April. These comments and information have largely been included into the revised text. We thank each of the reviewers sincerely for their efforts and insights which have undoubtedly improved this final report.

The views expressed in this report are intended to offer an overview of, and some of the lessons learned from, the Iraqi Marshlands Project following its conclusion in 2009. We have tried to balance our thoughts and to offer fair perspectives of what we have observed and learned from people far more knowledgeable about the Project and its context than we will ever be. Our sincere apologies in advance if anyone should take anything written to be anything other than constructive criticism.

Perhaps one of the overriding things we have witnessed and learnt from this evaluation is the great dedication and enthusiasm that the people involved have brought to their work in attempting to restore the Marshlands, especially those in Iraq working under such extremely challenging conditions. We would like to wish them every success in their continuing endeavours

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ACRONYMS AND TERMS

| | |
|-------|---|
| c. | Circa (about) |
| CRIM | Centre for Restoration of the Iraqi Marshlands |
| DTIE | Division of Technology, Industry, and Economics |
| EIA | Environmental Impact Assessment |
| ESTIS | Environmentally Sound Technology Information System |
| GEF | Global Environment Facility |
| GoI | Government of Iraq |
| ha | Hectare(s) |
| IETC | International Environmental Technology Centre |
| ITF | Iraq Trust Fund |
| M&E | Monitoring and Evaluation |
| MoMPW | Ministry of Municipalities and Public Works |
| MoPDC | Ministry of Planning and Development Cooperation |
| MOU | Memorandum of Understanding |
| MP | Member of Parliament |
| MTS | Medium Term Strategy |
| NGO | Non-governmental Organization |
| PCAU | Post-Conflict Assessment Unit, |
| PCDMB | Post-Conflict and Disaster Management Branch |
| PIU | Project Implementation Unit |
| ROI | Review of Outcomes to Impacts |
| ROWA | Regional Office of West Asia |
| TE | Terminal evaluation |
| TET | Terminal Evaluation Team |
| ToR | Terms of Reference |
| UNAMI | United Nations Assistance Mission for Iraq |
| UNDG | United Nations Development Group |
| UNEP | United Nations Environment Programme |
| UNOPS | United Nations Office for Project Services |
| US\$ | United States Dollar |

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EXECUTIVE SUMMARY

The terminal evaluation (TE) of the Project was conducted over a period of 60 man-days between 15th February 2010 and 31st January 2011 by a team comprising an international and a national consultant. The evaluation commenced two months after the closure of the third and final phase of the Project but was delayed because of factors beyond its control. The Evaluation's ToR is given in [Annex I](#), its itinerary in [Annex II](#) and the list of people interviewed in [Annex III](#). The lack of targets and quantification of the logframe indicators makes any attempt to provide a more detailed evaluation of the level of achievements, as would be usual, redundant. The draft report was submitted on 14th February 2011 and was finalised on 15th April after receipt of comments on 14th March 2011 and additional information on 1st April.

KEY ISSUES

The Support for Environmental Management of the Iraqi Marshlands Project was initiated in order to respond to Iraqi priorities in the Marshlands in an environmentally sound manner in the post-conflict period, and grew into one of the largest environmental projects conducted within the framework of the UNDG-ITF. Relatively simple in concept and scope, the Project was implemented during exceptionally difficult security conditions at the height of the insurgency which effectively turned a post-conflict situation into one of actual conflict. The security problems meant that no international staff could visit Iraq; terrorism claimed the lives of several Government officials associated with the Project, and others resigned; field activities were delayed; activities had to be significantly adapted; to name but a few of the problems. Notwithstanding this, the Project implemented all of its intended activities, including those of two additional phases introduced on the back of its initial successes, which resulted in considerable benefits for Marshland restoration and the people who live there. It is a testament to the skill and dedication of those involved, not just the Project's staff but the Iraqi counterparts involved, that such success was achieved in such difficult circumstances. On the debit side, concerns have been raised over whether the current donor coordination mechanism is adequate, since although the medium- and long-term nature of some post-conflict priorities are recognised, most donor money is short-term oriented, motivated by the political imperative of being seen to be doing something; and this in turn begs the question of whether post-conflict intervention is actually the correct vehicle for long-term environmental projects such as those involving habitat restoration? In no small part, this short-term vision has led to the Project's analysis of risks and assumptions being focussed entirely on human-based issues, primarily security, with no thought given to the larger environmental picture. This may have had repercussions for the sustainability of some of the Project's demonstrations.

RESULTS

All Project activities appear to have been fully implemented with almost no shortcomings. Of the 11 Components comprising the four separate phases of the Project (Phase I, II-A, II-B, and III), ten have been assessed as Highly Satisfactory and one as Satisfactory.

Key successes – *supply of safe drinking water for up to 25,000 people in seven Marshland communities through provision of seven drinking water stations with over 23 km of water distribution pipes and over 127 common distribution taps; proving the feasibility of using alternative energy to power water EST stations; provision of a constructed wetland sanitation system to serve c.170 inhabitants facing health hazards from untreated wastewater discharges; implementation of wetland rehabilitation and reconstruction initiatives using phytotechnology to improve the water quality for re-flooding the Marshlands, including extensive monitoring programmes; extensive data (water quality, satellite image analysis and remote sensing), experience on suitable options (what options worked where, and how) and policy and institutional needs assessments, which will serve as inputs when formulating a long-term management plan to benefit the people and ecosystems of Southern Iraq; establishment of Marshlands Information Network (MIN) with Arabic and English interfaces to share data among various Iraqi institutions, with training on system management, through server hardware and software procurement and installation in four locations within the MoE, as well as in the MoWR, MoMPW, Nature Iraq, and UNEP-DTIE-IETC, and with information also uploaded to the Marsh Arab Forum, Thi-Qar University, and other local institutions; development of Iraqi Marshlands Observation System (IMOS) to monitor re-flooding and change in vegetation, in cooperation with UNEP PCDMB and UNEP Division of Early Warning and Assessment; institutional capacity assessment for the*

Ministry of Environment was conducted by UNEP PCDB; execution of a demographic and socio-economic survey of 199 Marshland villages and a survey of solid waste management and characterisation in nine cities in partnership with Thi-Qar University. to provide inputs for local and national level policymakers to identify local needs and priorities for interventions; enhancement of the capacity and knowledge of Iraqi decision-makers, technical experts and community members through two study tours, and 14 international and ten domestic training courses with 477 training placements (25% women), covering policy and institutional elements, technical knowledge, community engagement, and analytical methods; and raising awareness and increasing the practical knowledge about environmental conservation and personal hygiene through community initiatives for more than 1,100 women in Marshland communities.

Key problem areas – weak logical frameworks; inadequate consideration of the bigger picture regarding availability of water; questionable relevance of the scale or the phytotechnology restoration aspects; and questionable relevance of post-conflict mechanism as suitable vehicle for long-term environmental restoration project.

Recommendations and Lessons Learned are listed on pages 54-57.

OVERALL RATINGS TABLE

| Criterion | Evaluator's Summary Comments | Evaluator's Rating |
|---|---|--|
| A. Attainment of project objectives and results (overall rating) Sub criteria (below) | Despite the exceptionally difficult implementation conditions arising from the very challenging security situation, the Project has delivered all of its intended outputs. Unfortunately some of these have failed to achieve their intended impacts because of external variables such as drought, while others such as the Marshland Information Network are working inefficiently because of capacity issues. There are possible issues over the relevance of some of the ESTs. Poor design of the Project's indicators means that most cannot be measured with any accuracy. | S |
| A. 1. Effectiveness - overall likelihood of impact achievement (ROtI rating) | Many of the components show every sign of achieving their intended impacts, particularly those relating to awareness raising and capacity building. Amongst the EST pilots, the achievement of impacts for the provision of water appears highly likely (AA) although the solar stills have problems (AC), but for the sanitation (AD) and wetland restoration components (AD) this appears unlikely. Despite the Marshland Information Network also having problems, the achievement of its intended impact also looks highly likely (AB). Of 15 scores allocated (11 Components, 2 with 3 sub-components) the ratings are: Highly Likely (7) AA+ (1), AA (3), AB (3); Likely (1) BB (1); Moderately Likely (4) AC (3), BC (1); and Unlikely (3) AD (3). | S AA+ to AD – highly likely to unlikely |
| A. 2. Relevance | The Project has provided the means to scientifically ground the planning and decision-making necessary to manage the Marshlands and has also responded well to the priority need to provide drinking water, but the sanitation and wetland restoration approaches appear not to have garnered favour and maybe somewhat inappropriate in the context. | S |
| A. 3. Cost-effectiveness | Overall, the cost-effectiveness of the Project has been as good as the security situation has allowed, and its management has taken innovative approaches to control costs. | HS |
| B. Sustainability of Project outcomes (overall rating – sub-criteria (below)) | Since UNEP deems each risk dimension of sustainability critical, the overall rating for sustainability cannot be higher than the rating of the dimension with lowest rating. | MU |
| B. 1. Financial | The pilot projects were formally handed over to the Iraqi Government and there is clear evidence that they are still working or that they worked for as long as environmental conditions allowed. Operations and maintenance are being financed. | L |
| B. 2. Socio-political | Generally good, with Government strongly committed to restoration of Marshlands and Marsh Arabs desiring to return their homelands. Provision of drinking water supported, but no take-up of phytotechnology-based pilots. Strong support amongst local people for drinking water provision, but harder to ascertain other aspects, e.g. awareness-raising amongst women. | ML |

| Criterion | Evaluator's Summary Comments | Evaluator's Rating |
|---|---|--------------------|
| B. 3. Institutional framework and governance | Generally good, with government authorities at both national and local levels having been strengthened. The MIN is addressing some issues of coordination, but is running into problems of inefficiency because of inadequacies in administration (e.g. lack of fuel for generators). | ML |
| B. 4. Environmental | Major problems with water shortages with two-year drought (2008/9) exacerbating existing low flows in main rivers caused by upstream dams have begun to reverse the restoration process and prompt people to begin to leave again. Some of the Project's pilot projects were abandoned in 2008. | MU |
| C. Catalytic Role | The Project has displayed high levels of innovation in introducing and demonstrating ESTs to the Iraqi Marshlands, and at least one of these appears to have been scaled-up through replication by the Government. The early phase of the Project leveraged catalytic financing for further phases, and the Project as a whole appears to have been influential in attracting further funding for the UNEP-UNESCO <i>Natural Cultural Management of the Iraqi Marshlands as World Heritage</i> project | S |
| D. Stakeholders involvement | The Project has worked closely with a large number of stakeholders throughout and the active engagement of local stakeholders, particularly in decision-making, has been vital to it fulfilling its intended aims. | HS |
| E. Country ownership / driven-ness | The concept and implementation of the Project has clearly been country driven and UNEP has responded to this to ensure ownership at all levels. Subsequent actions suggest that problems remain, but many of these are the result of political, economic, and environmental difficulties rather than a lack of commitment. | S |
| F. Achievement of outputs and activities | The Project has achieved all of its major relevant objectives and yielded satisfactory benefits, with no significant shortcomings. | HS |
| G. Preparation and readiness | All international and Iraqi agencies concerned displayed good levels of readiness, and this was complemented by a very good inception phase with high levels of coordination with agencies and other projects working in the area. The only problem issue was that the international community mistook just how low the baseline capacity was and how bad the security situation would get, but ultimately, the simplicity of the Project's design bequeathed a robustness to the Project that saw it through the myriad of implementation problems that subsequently arose | S |
| H. Implementation approach | The Project has been implemented in a thoroughly professional and skilful manner which has delivered all the intended outputs in spite of the exceptionally difficult conditions and ensuing constraints operative during the implementation period. Both the adaptive and technical management of the Project have been excellent. | HS |
| I. Financial planning | Financial planning and management appear to have been effective throughout. Accounting has been thorough and reporting rigorous. | HS |
| J. Monitoring and Evaluation (overall rating – Sub-criteria (below)) | Despite no formal M&E Plan having been developed, and only limited funds being allocated, progress monitoring through reporting and internal activity monitoring through excellent communication channels has been exceedingly good. | S |
| E. 1. M&E Design | No M&E Plan was included in the design of any of the Project's phases, but the TET notes that the design of all phases was prior to increased focus on and requirements for, M&E practices. | U |
| E. 2. M&E Plan Implementation (use for adaptive management) | M&E implementation has been mixed, with excellent progress monitoring and very good internal activity monitoring, but poorer impact monitoring. | S |
| E. 3. Budgeting and Funding for M&E activities | Allocated budgets for M&E appear to have enabled significant levels of M&E to take place. | S |
| K. UNEP Supervision and backstopping | UNEP appear to have provided the necessary level of backstopping and supervision with no problems reported. | HS |

APPROACH AND METHODOLOGY

1. Monitoring and evaluation at the project level in the UN has two overarching objectives, namely to promote accountability for the achievement of UN objectives through the assessment of results, effectiveness, processes and performance of the partners involved in project activities; and to promote learning, feedback and knowledge sharing of results and lessons learned within the UN and among its partners, as a basis for decision-making on policies, strategies, programme management, and projects and to improve knowledge and performance. With this in mind, this Terminal Evaluation (TE) was initiated by the Evaluation Office of UNEP for the project entitled *Support for Environmental Management of the Iraqi Marshlands*, to assess the actual performance and results of the Project against the planned project activities and outputs, at the national and local levels and to determine the extent and magnitude of any project impacts to date and the likelihood of future impacts.

2. The TE was conducted over a period of 60 man-days between 15th February 2010 and 31st January 2011 by a team comprising an international and a national consultant. The evaluation commenced two months after the closure of the third and final phase of the Project but was delayed because of factors beyond its control (see paragraph 7). The approach was determined by the terms of reference (Annex I) and focuses on four key questions (see section 2.1 of the TOR) and the four-and-a-half-year implementation period, but includes an assessment of the Project's design, and makes recommendations related to the Project's post-implementation period. A detailed itinerary is given in Annex II. The report was finalised on 15th April 2011 after receipt of comments on 14th March and additional information on 1st April which were incorporated into the final version.

3. The Evaluation was conducted through the following participatory approach:

- face-to-face interviews with the Project's management at the UNEP International Environmental Technology Centre (IETC) in Japan and UNEP's Division of Technology, Industry, and Economics in Paris, as well as national and local stakeholders, particularly the beneficiaries, at the demonstration sites. Throughout the evaluation, particular attention was paid to explaining carefully the importance of listening to stakeholders' views and in reassuring staff and stakeholders that the purpose of the evaluation was not to judge performance in order to apportion credit or blame but to measure the relative success of implementation and to determine lessons for the wider GEF context. The confidentiality of all interviews was stressed. Wherever possible, information collected was cross-checked between various sources to ascertain its veracity, but in some cases time limited this. A full list of people interviewed is given in Annex III.
- a thorough review of project documents and other relevant texts, including the project documents, previous evaluation reports, six-monthly progress reports, the financial statements, and the excellent completion report on the Project, and relevant material available on the Project's website (<http://marshlands.unep.or.jp/>);
- field visits to six of the seven of the demonstration drinking water station sites, namely Al-Ghreej, Al-Jeweber, Al-Kirmashiya, and Badir Al-Rumaidh in Thi-Qar Province and Al-Hadam and Al-Sewelmat in Missan Province; and to the sanitation pilot station at Al-Chibayish, and the Main Drain wetland management pilot project in Auda Marsh, both in Thi-Qar Province. The TET was informed that the station at Al-Masahab had been out of order for a long time and, given the distance and the poor roads involved, a visit was deemed to be unnecessary; and
- questionnaires targeted at four main groups, namely central and local government officials, trainees who participated in the Project workshops and training courses organised inside Iraq or abroad, the beneficiary groups (local communities), and a sample of women who participated in the local training courses on environmental and health issues. Unfortunately, by 31st December 2010, only a handful of people from across the groups had responded – see Annex V.

4. Wherever possible the terminal evaluation team (TET) has tried to evaluate issues according to the criteria listed in the TOR, namely:

- A. Attainment of project objectives and results
 - A. 1. Effectiveness - overall likelihood of impact achievement (ROtI rating)
 - A. 2. Relevance
 - A. 3. Efficiency
- B. Sustainability of Project outcomes
 - B. 1. Financial
 - B. 2. Socio Political
 - B. 3. Institutional framework and governance
 - B. 4. Environmental
- C. Catalytic Role and Replication
- D. Stakeholders involvement
- E. Country ownership/driven-ness
- F. Achievement of outputs and activities
- G. Preparation and readiness
- H. Implementation approach
- I. Monitoring and Evaluation
 - I. 1. M&E Design
 - I. 2. M&E Plan Implementation (use for adaptive management)
 - I. 3. Budgeting and Funding for M&E activities
- J. Financial planning
- K. UNEP Supervision and backstopping
- L. Complementarity with UNEP Medium Term Strategy and Programme of Work

Lessons learned have been placed in boxes and cross-referenced with a number hyperlinked to the “*Lessons Learned*” section where further discussion can be found.

- 5. The TE has evaluated the Project’s performance against these criteria according to the six-point evaluation scale provided to it in the TOR. This is reproduced in Table 1 for clarity along with the more detailed definitions used by the GEF.

TABLE 1: SCALE USED TO EVALUATE THE PROJECT BY THE TERMINAL EVALUATION

| Rating | TOR Definition | GEF equivalent |
|---------------------------------------|--|--|
| Highly Satisfactory (HS) | The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. | Project is expected to achieve or exceed all its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”. |
| Satisfactory (S) | The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. | Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings. |
| Moderately Satisfactory (MS) | The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. | Project is expected to achieve most of its major relevant objectives but with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits. |
| Moderately Unsatisfactory (MU) | The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. | Project is expected to achieve some of its major global environmental objectives with major shortcomings or is expected to achieve only some of its major global environmental benefits. |
| Unsatisfactory (U) | The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. | Project is expected not to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits. |

| | | |
|----------------------------------|---|---|
| Highly Unsatisfactory (U) | The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. | The project has failed to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits. |
|----------------------------------|---|---|

In addition, other scales have been used to cover sustainability (Table 2), monitoring and evaluation, and to assess impacts. The Review of Outcomes to Impacts (ROtI) method also requires ratings to be made for outcomes achieved by the project and the progress made towards the ‘intermediate states’ at the time of the evaluation. The rating scale is given in Table 3 while Table 4 shows how the two letter ratings for “achievement of outcomes” and “progress towards intermediate states” translate into ratings for the “overall likelihood of impact achievement” on a six-point scale. A rating is given a ‘+’ notation if there is evidence of impacts accruing within the life of the project which moves the double letter rating up one space in the six-point scale.

TABLE 2: SCALE USED TO EVALUATE THE SUSTAINABILITY OF THE PROJECT

| | |
|--------------------------|---|
| Likely (L) | There are no risks affecting this dimension of sustainability. |
| Moderately Likely (ML) | There are moderate risks that affect this dimension of sustainability. |
| Moderately Unlikely (MU) | There are significant risks that affect this dimension of sustainability. |
| Unlikely (U) | There are severe risks that affect this dimension of sustainability. |

TABLE 3: RATING SCALE FOR OUTCOMES AND PROGRESS TOWARDS “INTERMEDIATE STATES”

| Outcome Rating | Rating on progress toward Intermediate States |
|---|--|
| D: The project’s intended outcomes were not delivered | D: No measures taken to move towards intermediate states. |
| C: The project’s intended outcomes were delivered, but were not designed to feed into a continuing process after project funding | C: The measures designed to move towards intermediate states have started, but have not produced results. |
| B: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding | B: The measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact. |
| 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. | A: The measures designed to move towards intermediate states have started and have produced results, which clearly indicate that they can progress towards the intended long term impact. |

TABLE 4: RATING SCALE FOR THE “OVERALL LIKELIHOOD OF IMPACT ACHIEVEMENT”.

| Highly Likely | Likely | Moderately Likely | Moderately Unlikely | Unlikely | Highly Unlikely |
|-----------------------------------|------------------------|-------------------|---------------------|------------------|-----------------|
| AA AB BA CA BB+ CB+ DA+ DB+ | BB CB DA DB AC+ BC+ | AC BC CC+ DC+ | CC DC AD+ BD+ | AD BD CD+ DD+ | CD DD |

6. This Review of Outcomes to Impacts (RoTI) methodology has only recently been introduced by the UNEP Evaluation Office and this evaluation represents one of its earliest uses by the UNEP Office of Evaluation. Unfortunately, the TE discovered a flaw in its logic when trying to apply it, since the table showing the ratings scale for the overall likelihood of impact achievement (Table 4) assumes a two-letter coding running from AA to DD with all possible combinations in between. However, while the explanation of these letter codes (Table 3) suggests that all two letter codes are possible, a perusal of the examples given in Annex 5 of the TE's TOR (attached in full with complete annexes in Annex I of this evaluation report) shows this not to be possible since under the application of codes D and C it states:

“Funds were spent, outputs were produced, but nothing in terms of outcomes was achieved. People attended training courses but there is no evidence of increased capacity. A website was developed, but no one used it. (Score – D)”

“Outcomes achieved but are dead ends; no forward linkages to intermediary stages in the future. People attended training courses, increased their capacities, but all left for other jobs shortly after; or were not given opportunities to apply their new skills. A website was developed and was used, but achieved little or nothing of what was intended because intended end users had no access to computers. People had meetings that led nowhere. Outcomes hypothesized or achieved, but either insignificant and/or no evident linkages forward to intermediary stages leading towards impacts. (Score – C)”

From these, it is clear that if there are no linkages forwards to an intermediary stage, then it is not possible to continue forwards and apply a coding to that intermediary stage; and indeed the example paragraph goes on to state:

“Outcomes” scored C or D. If the outcomes above scored C or D, there is no need to continue forward to score intermediate stages given that achievement of such is then not possible.”

As a result, the TE has dispensed with any two letter combination for any component assessed as C or D in relation to its outputs and has simply called C as Unlikely, and D as Highly Unlikely (although again he concedes that logically “Impossible” would be a better term since if the outcomes were not achieved he cannot see an intermediary stage ever being achievable).

CONSTRAINTS

7. The evaluation process has been constrained by a number of factors. Firstly, the security situation in Iraq has prevented the international consultant from visiting the country, in the same way that none of the DTIE or IETC staff could visit during the implementation. Secondly, the evaluation has been subject to considerable delay. A national consultant was recruited in February 2010 and undertook some initial work in-country. However, unforeseen circumstances intervened, and together with concurrent difficulties over his contract, these led to an amicable parting of company. However, a replacement took time to locate and the new national consultant eventually began work in September 2010 by which time the international consultant was busy with other work commitments. Thus, although the interviews with the Project's management staff were conducted in March/April 2010, writing up of the report did not commence until January 2011. Inevitably, some of the nuances and finer details which could not be committed to notes have been lost. Thirdly, the resources for the evaluation were always tight. While the itineraries of the international and first national consultant were carefully integrated so that a meeting between the two was possible in Paris in April 2010, subsequently that time and any meaning were lost by ensuing events. No further resources were available to replicate such a meeting with the second national consultant hence the two authors of this report have never been able to meet face-to-face. Some discussion has been possible by Skype and telephone, but often the quality of the media has made even this extremely difficult. Most communication has therefore been done through e-mail. To quote from Lesson C.1 of the review document “*The UNCT (Iraq) Cluster Approach – Lessons Learned to Date*”:

“Notwithstanding today's Internet wonders, there is a proven need for face-to-face discussions and meetings regarding information gathering and sharing, analysis, formulation, debate, coordination, ...”

Unfortunately, events have conspired to deny this to the TET.

PROJECT PREPARATION

BACKGROUND

8. After the toppling of the Ba'athist regime in Iraq in April 2003, the initiative to coordinate United Nations assistance to Iraq resulted in the establishment of the United Nations Development Group (UNDG) Iraq Trust Fund (ITF). Following the joint UN/World Bank Needs Assessment Initiative for the Reconstruction of Iraq, the restoration of the Iraqi Marshlands was prioritised as one of the major environmental and humanitarian challenges facing the country. Specific critical problems and associated needs were identified as managing the re-inundation of the marshes where water was contaminated with pesticides, salt from the dried surface, untreated industrial and sewage discharges, and stagnant water resulting from haphazard breaching of embankments; provision of safe drinking water to existing and returning residents; and provision of basic sanitation systems for wastewater and sewage treatment.

9. As well as multilateral mechanisms and donors, the ITF was able to deal with bilateral donors. The Japanese Government met with Iraqi refugees in Iran where the need for support was identified and 5 million signatures were collected by the coalition party in the Japanese Government in favour of providing support. In late 2003, during a high-level Iraqi delegation to Japan, senior Iraq representatives requested assistance from the Japanese Government and in a meeting with Prime Minister Koizumi, specifically requested prioritising management and restoration of the Marshlands. This specific request was again made during a meeting of the Iraqi Minister of Environment and the Japanese Foreign and Environment Ministers in March 2004. Under its justification for the Project, the Project Document stresses that:

“Specifically, the Iraqi Minister of Environment requested assistance in the improvement of water quality, as well as provision of technologies, equipment, and training.”

As a result, the Japanese Government offered funds through the mechanism of the Iraq Trust Fund to provide assistance a) to the Marshlands, and b) for capacity building within the Iraqi Ministry of Environment (MoE); and identified the United Nations Environment Programme (UNEP) as the implementer.

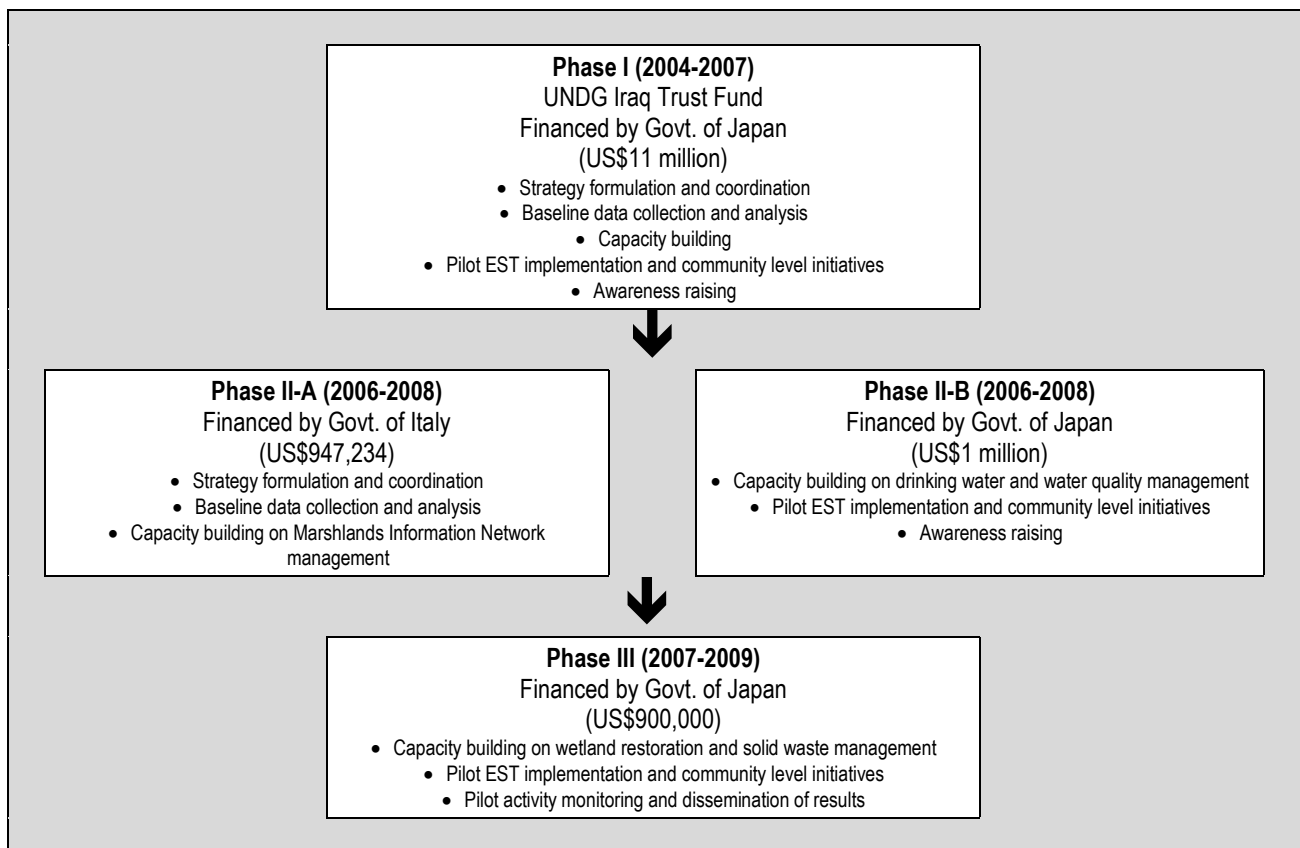
10. The Project Document was conceptualised by the DTIE-IETC in March-April 2004 and submitted through the Trust Fund clearance mechanism under Cluster #5 – Agriculture, Water Resources and Environment. It was cleared by the Cluster and the Head of Clusters Meeting, endorsed by the Iraqi line ministry, and by the Steering Committee of the ITF (which included the Iraqi Government), and received final approval from the Iraqi Strategic Review Board at the end of July 2004. Simultaneously, the Deputy Executive Director of UNEP fast-tracked approval within the Project Approval Group Mechanism and clearance was granted in late August. The Project commenced in September 2004 and later became recognised as Phase I.

11. Initially, the Project was for a one-year period in accordance with the ITF requirements. Additional requirements were noted as possibly being necessary in due course, and the ITF mechanism allowed for all projects to be revised and extended once they were underway which proved to be the case. The Project was recognised as being necessary and to be delivering results but in order for it to bring sustainable benefits, it was decided that it had to be continued. During donor coordination meetings held in Venice in November 2004 and Paris November 2005, the issue was identified that basic data relating to hydrological conditions, water quality and biodiversity, and land-use and demographics were still not available in all marshland areas and that more were needed to underpin sound management planning and decision-making. It also transpired that even those data that were available were not being shared and used effectively by institutions both inside and outside of Iraq and that this was due to there being no single common platform for this purpose nor support for coordinated data collection across the three categories of marshland management identified by the donor workshops, namely water, ecology, and socio-economy. Unless this was rectified, efforts to develop a coordinated management plan and reconstitute basic services such as drinking water and sanitation were likely to fail. The Italian Government recognised the urgency of these issues and provided funds for an extension to the Project (which became Phase IIA) to focus on the collection and analysis of data, provision of a data platform, and the necessary capacity building to use and manage the system. This was designed during the second half of 2005 and work started as Phase II-A through the same implementation mechanism in February 2006.

12. At the same time, feedback from the local communities during the first phase of the Project indicated two needs remained apparent – firstly, provision of safe drinking water remained the highest priority and while UNEP had received responses from 16 villages to its initial call for proposals, available resources had meant that only six of these could be covered during the first phase; and secondly the need to support women to raise awareness of the links between the marshland environment and improved health. The latter was also raised during dialogue between Iraqi representatives and Japanese MPs in May 2005. As a result, the Japanese Government agreed to allocate an additional US\$ 1 million directly to UNEP to address these needs. This segment of the Project became Phase II-B, and was designed in late 2005. Funds were deposited in mid-2006 and work started again through the same implementation mechanism in September 2006.

13. Phase III was conceptualised as Phase II-B started in September 2006. The deteriorating security conditions in Iraq had significantly slowed large-scale provision of basic services, particularly energy provision, and notably electricity, meaning that most rural areas were dependent upon diesel generators to supply power. With fuel rationing in place and worsening distribution conditions, provision of power to run the recently installed drinking water units had become seriously interrupted. Therefore, the need was identified that more robust, self-sufficient options better able to perform under difficult conditions were needed using alternative means of electricity supply such as solar power. The deteriorating security situation had two other unforeseen consequences, notably that many educated and professional people had left Iraq and that costs associated with all aspects of project provision had escalated, particularly those of training, field contracts, security, operations and management. The third phase therefore built on the experience and success of the first phases of the Project to address these needs and to extend the capacity-building components. The project design was endorsed by the Iraqi Strategic Review Board and commenced implementation in September 2007. A schematic summary of the project phases is shown in Figure 1.

FIGURE 1: SUMMARY OF PHASES AND ACTIVITIES OF IRAQI MARSHLANDS PROJECT



CONCEPT AND DESIGN

Design Logic

14. The Project's concept was deceptively simple in that it was recognised that the destruction of the Iraqi Marshlands was “*one of the major environmental and humanitarian disasters facing Iraq*” and consequently that their restoration was a priority. Three issues were seen as being of overriding importance in this process – a coordinated response to manage the re-inundation in the light of contamination by pesticides, salt, and untreated industrial and domestic waste; and provision of safe drinking water and waste-water systems both for the remaining resident population and to encourage the return of people to their villages. Under the justification for the Project, the Project Document states,

“Due to the uniqueness of the Iraqi Marshlands ecosystem and its socio-cultural heritage, technical and programmatic responses needed to address the above priorities may be quite different from those most appropriate for other settings”

but it never goes on to expand upon this uniqueness and, strangely, how and why the approach determined is or was different from other settings. Nonetheless, it importantly identified one of the key constraints to successful restoration as:

“limited capacity and credible information for policy-makers, experts, and communities to assess and implement solutions”

and made rectifying this the central plank of the intervention. The design of the Project was then logically built around a conceptually simple model, namely to:

- i) provide support for strategy development and coordination;
- ii) collect and analyse baseline data;
- iii) build capacity, in particular in integrated water resource management (IWRM) and in the technical identification, implementation and management of environmentally sustainable technology (EST);
- iv) demonstrate EST technology suitable for marshland management and water/sanitation provision on a pilot scale; and
- v) raise awareness to increase community involvement and ownership to promote long-term sustainability.

15. Conceptually simple the design might have been, yet the implementation environment proved to be anything but, with the “post-conflict” situation in which implementation was expected to take place turning out to be more “conflict” than “post”. It is, however, very much to the designers' credit that the design was simple because it, and the later phases, turned out to be highly robust in the face of extremely challenging conditions. Simplicity often seems to be shunned by project designers who seem to view complexity as a necessity to demonstrate their skills or justify their fees. It is therefore refreshing to come across a project where this is not the case and where the simplicity of the design has proved to be a major strength of the Project.

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| #1 | Lesson learned: Simplicity of design can ensure effectiveness of implementation, especially in challenging circumstances. |
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16. That said, the constraints on the design process have introduced some problems. It is clear that the Project was not actually designed as a phased project, i.e. there was never an overall framework into which the phases were placed. Instead, the original concept was for delivery for a one-year intervention¹ in accordance with ITF requirements, with the full intention to extend this to cover additional requirements which were noted. Thus, the idea of phasing was a response to demand and the availability of funding. While this responded to political imperatives and the needs of donors, and subsequently helped the implementation of the project (i.e. the simplicity mentioned above ensuring that management was not overloaded), in responding to what is effectively an emergency situation, there is a tendency for things to become rushed and mixed up (the word “*chaotic*” was used by one interviewee) and this has resulted in two weaknesses in the design, thus:

¹ Project Document – Section 1.7 Duration of Project 12 months

- The Project’s analysis of risks and assumptions focuses entirely on human-based issues, primarily security, but also on such things as political and financial support and sufficient capacity. Nowhere does it look at the larger environmental picture. The single key determinant in re-flooding the Marshlands is the availability of sufficient water. This underpins not only the physical re-flooding but subsequently all of the Project’s key demonstration pilots – the source for any supply of drinking water, sanitation, and technologies to improve water quality. Problems with water supply were already well-documented and both Syria and the former Iraqi regime had complained about reduced water supplies from Turkey since it commenced its massive programme of dam-building of the headwaters of the Euphrates and Tigris rivers in the 1980s. The increased requirements for water to re-flood the entire Iraqi Marshlands, even on a phased basis, were always going to be precarious given these reduced river flows, yet no-one saw fit to identify it as a risk, or even to state the continued adequate supply of water as an assumption. While it is true that the designers may have thought that since this was simply a 12-month project, the water supply would be sufficient for that period, and in any event if it was not, there was nothing that could be done about it, in fact stating such an assumption is no different in terms of scale or likelihood from the other assumptions which were stated, e.g. the first one in the logframe “*High level commitment to address environmental problems and risks to human health maintained*” – it is unlikely that such commitment would decrease substantially during the Project’s 12-month period, nor if it did could the Project do much about it. The precariousness of the water supply has, unfortunately, come back to haunt the sustainability of the Project through a two-year drought which, granted no-one could have foreseen, but which could have been identified as a risk.
- The second weakness is apparent in the rather poor logical frameworks developed for the Project which lack proper results-based targets, especially in comparison to, say, those required by the Global Environment Facility. Even allowing for the simplicity of the core design and the intended outcomes, and even allowing for the evolving sophistication of GEF’s approach to logframes, these UNEP logframes fall well short of GEF’s standards of the same era. This is most evident in the complete lack of quantification in the measurable indicators, but the TET notes that quantifiable indicators and targets were not required by the ITF for its projects. Weaknesses are also evident in the lack of consistency between the Phase I logframe and those for Phases II A and B and III; the first defining development and immediate objectives but then having a series of Outputs (rather than Outcomes) which are divided into five components, while the three other logframes introduce a concept called “results” not normally found in a logframe which appear to be some sort of hybrid between an Immediate Objective and an Outcome followed by a series of Outputs envisaged to achieve the “Results”. None of this appears to follow currently accepted logical framework methodology, although the TET recognises that it met the required Results Management Model for logframes within the UNEP Project Manual in use at the time of the Project’s design.

17. But the larger questions are probably of more import. Specifically, is the current donor coordination mechanism adequate, since although the medium- and long-term nature of some post-conflict priorities are recognised, most donor money is short-term oriented, motivated by the political imperative of being seen to be doing something. This discrepancy between the requirements of a long-term environmental challenge of the sort posed by the need to restore the Iraqi Marshlands, and the need to see immediate benefits, then begs the question voiced by a senior UNEP officer, of whether post-conflict intervention is actually the correct vehicle for long-term environmental projects such as those involving habitat restoration? If it is, then the projects have to be either more comprehensive and address the larger-scale issues and be funded accordingly² – a figure of hundreds of millions of dollars was mentioned in one interview – or they should be more focussed on a manageable single issue facilitating a component thereof, e.g. as here with, say, the supply of drinking water, preferably within a coordinated framework. Comments received on the draft version of this report suggested that the key issue is how UNEP can start from immediate interventions and gradually move to a transition for regular, longer-term programming, and that this Project, through different phases and follow-up with the UNEP-UNESCO project entitled “*Natural Cultural Management of the Iraqi Marshlands as World Heritage*”, has demonstrated one path to achieve that immediate-to-longer-term

² Since the Project’s commencement, the UN has established the Iraq UN Development Assistance Framework (UNDAF) Fund, to support the 2011-2014 Iraq UNDAF, which articulated Iraq’s recovery and transition towards longer-term development. The Iraqi UNDAF provides a coordinated strategy for UN assistance delivery that is in line with the Iraqi developmental priorities. The UN wide transition from post-conflict towards longer-term development has started. Furthermore, the GEF resources are now available

transition. The comments also suggested that UNEP’s comparative advantage is in providing a range of relevant experiences, proof of concept, testing of ideas, and that the demonstration components for this project were in line with this, with efforts made to share data, experiences, and policy-relevant findings with the Iraqi partners to support potential uptake. However, in the TET’s opinion the present Project has fallen between the comprehensive and the simple, and in both the TET’s view and that of some of the interviewees, spread its resources too wide – the classic Christmas tree approach of trying to offer everything to everybody. A more comprehensive range of demonstrations across a single issue, e.g. water provision or sanitation, allowing the Iraqis to view a number of alternatives in action and to select for themselves which to move forward with, might have resulted in greater uptake. This in turn raises serious questions about undertaking demonstration projects and leaving them to be scaled-up. Can small-scale demonstration really achieve much larger-scale results? In the present Project, as will be seen, there is some suggestion that the interventions for drinking water were successful, as also initially was the idea for facilitating sharing of information for planning purposes, but the small-scale demonstrations of phytotechnology, particularly in relation to improving the quality of water used to re-flood the marshes, are decidedly questionable given the scale of the restoration process and the presence of much greater issues, e.g. the amount of water being retained by upstream countries and the impact that that is having on reducing the spring flooding of the marshes and the associated flushing of salts and replenishment of nutrients (see also paragraph 92). Habitat restoration is usually difficult and takes a long time, and in the absence of a well thought out results-based approach to the Project’s design, it is really difficult to assess whether any real issues have been affected. While the provision of “*Support for environmental management of the Iraqi Marshlands*” is clearly understood, i.e. it is not the restoration of the marshes *per se* but support towards it, the weakness of the measurable indicators means that the scale of the intended impacts is not actually defined anywhere so that even for the seemingly successful interventions, “*number of communities and residents that receive water ...*” is meaningless. There is a big difference between the Project successfully providing seven drinking water stations if it was intended to deliver only five than if it was supposed to deliver twenty. When the indicator is “*number of communities and residents that receive ... improved marshland environment*” the same questions apply over “number” but multiply alarmingly over the definition of “improved marshland environment”.

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| #2 | Lesson learned: Post-conflict mechanisms focussed on immediacy of results may not be the optimum vehicle for addressing long-term environmental challenges. |
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Budgeting

18. The Project was designed with a fixed budget already secured. This was the case with all four phases. This approach removes any problems associated with the non-delivery of promised co-funding that has affected, for example, some GEF projects. The only risk associated with this type of funding could be adverse changes in the exchange rates of various currencies. In fact, such changes benefited Phase II-A of the Project resulting in the value of the Euros donated rising from US\$ 930,000 at the time of the original commitment to US\$ 947,000 on completion of implementation.

Organisational Arrangements

19. The organisational arrangements in the design took full cognisance of the difficulties associated with the difficult security situation in Iraq in 2003/4. The design correctly makes the assumption that “*the security situation does not normalize to enable international UN staff to work in Iraq during 2004*” and deployed a devolved set of organisational arrangements to compensate, such that an Iraqi project implementation unit would be established in the relevant line ministry, i.e. the MoE, and implementation would be carried out by local partners who had participated in training, therefore both raising and using their capacity. Given UNEP had no country presence in Iraq prior to the conflict, the United Nations Office for Project Services (UNOPS) office in Amman, Jordan, was enhanced to provide adequate back-stopping. UNOPS was identified to provide assistance with procurement and contractual issues. Unfortunately what the designers did not predict, and for that matter nor did almost anyone else, was just how far the security situation in Iraq would deteriorate, thereby leading to significant difficulties, delays, and increased costs.

UNEP Programming Context

20. The Project Documents for Phase II give the relevant General Council decisions as:

- GC23/1 Implementation on decision SS.VII/1 on international environmental government, particularly I on Bali Strategic Plan for Technology Support and Capacity Building;
- GC23/2 on updated water policy and strategy of UNEP, based on GC22/2 on water policy and strategy of UNEP; and
- GC22/8 on further improvement of environmental emergency prevention, preparedness, assessment, response, and mitigation

while that for Phase III also makes reference to:

- GC24/1 which has the same wording as GC23/1 above, and
- GC24/16: Updated water policy and strategy of UNEP, specifically under the Management Component relating to Integrated Water Resource Management.

The relevant Millennium Development Goals are given as:

- MDG: Goal 7, ensuring environmental sustainability, Target 10 “*halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation*”; and
- WSSD: Johannesburg Plan of Implementation, on sanitation provision.

21. The TE’s ToR requires a brief consideration of the Project’s Complementarity with the *UNEP Medium Term Strategy (MTS)/Programme of Work 2010/11*. Even though the start of its design preceded the MTS by seven years, the Project’s Outcomes are still complementary with, and will actively promote, five of the “*Expected Accomplishments*” articulated under three of the focal areas:

1) Disasters and Conflicts, namely:

- (b) *That acute environmental risks caused by conflicts and disasters are mitigated;*
- (c) *That the post-crisis assessment and recovery process contributes to improved environmental management and the sustainable use of natural resources*

2) Ecosystem Management, namely:

- (a) *“That countries and regions increasingly integrate an ecosystem management approach into development and planning processes; and*
- (b) *That countries and regions have capacity to utilize ecosystem management tools”.*

3) Environmental Governance, namely:

- (d) *“That national and international stakeholders have access to sound science and policy advice for decision-making”.*

While the magnitude and extent of these contributions cannot really be measured because of the difficulty of isolating them from the complexity of factors affecting restoration of the Marshlands, the causal link is obvious – the entire Project has been implemented to help mitigate the disaster brought about through conflicts with the previous regime; and to bring about recovery through improved management and the demonstration and deployment of ESTs. Furthermore, the data and information management systems were designed to provide greater coordination into planning so that an ecosystem approach is viable; the systems themselves are ecosystem management tools; and they provide a sound scientific platform to assist national stakeholders in their decision-making.

22. The Outcomes of the Project are also complementary with two of the Objectives (and two sub-objectives) of the Bali Strategic Plan, namely:

- (a) *“To strengthen the capacity of Governments of developing countries as well as of countries with economies in transition, at all levels:*

- (iii) *To comply with international agreements and implement their obligations at the national level;*
- (iv) *To achieve their environmental goals, targets and objectives, as well as environment-related internationally agreed development goals, including those contained in the Millennium Declaration, the Plan of Implementation of the World Summit on Sustainable Development and the outcomes of other major United Nations conferences and international agreements, thus enhancing the environmental sustainability of their countries' development;*
- (v) *To use and sustain the capacity or technology obtained through training or other capacity-building efforts after such efforts have been completed;*
- (vi) *To develop national research, monitoring and assessment capacity to support national institutions in data collection, analysis and monitoring of environmental trends and in establishing infrastructure for scientific development and environmental management, in order to ensure sustainability of capacity-building efforts;*
- (h) *To enhance delivery by UNEP of technology support and capacity-building, within its mandate, to developing countries as well as to countries with economies in transition based on best practices from both within and outside UNEP, including by mainstreaming technology support and capacity-building throughout UNEP activities; and*
- (j) *To promote, facilitate and finance, as appropriate, access to and support of environmentally sound technologies and corresponding know-how, especially for developing countries as well as countries with economies in transition.”*

while the involvement of several institutions in Egypt, Jordan, and Syria in technological training and the exchange of knowledge provide excellent examples of South-South cooperation.

Objectives and Components

23. As indicated in paragraph 16, the Project's logical frameworks are weak, inconsistent, and do not appear to follow any currently recognised structure, although the TET re-iterates that it met the requirements of UNEP at the time of the Project's design. This raises difficulties in standardising levels between them for the purposes of the evaluation. Therefore, for this report the TET has not attempted to equate various segments of the logframes to "Outcomes" but has taken the idea of "Components" and "Results" to be similar (even if worded wholly differently) and used the generic term "Components" for all and given each a sequential number, e.g. "Results #1" of Phase II-A has become "Component 6" while "Results #2" of Phase III therefore becomes "Component 11". This arrangement with 11 Components and 37 indicators has been used throughout as the basis for this evaluation for practical reasons. It is important to stress that this approach does not in any way suggest that the components are irrelevant to each other or scattered. In fact the three phases have clearly built upon the successes of, or evolved to cover the gaps in, earlier phases, e.g. Component 6 is a ramified form of Component 1, Component 7 is from Component 2, Component 8 and 9 is from Components 3, 4 and 5 (Component 3, 4 and 5 are categorized by subject while Component 8 and 9 are done by target group), Component 10 is from Component 5, and Component 11 is from Component 1. The following are the key objectives formulated for the Project:

Development Objective

Support the sustainable development and management of the Iraqi Marshlands.

Immediate Objective

To monitor and assess baseline characteristics of marshland conditions and provide information.

To build capacity of Iraqi decision-makers and communities in various aspects of marshland management.

To identify EST options for immediate provision of drinking water and sanitation and wetland management, and implement them on a pilot basis.

To identify needs for additional strategy formulation and coordination for longer-term management plan development.

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| Phase I | <u>Component 1</u> | <i>Support for strategy development and coordination</i> |
| | <u>Component 2</u> | <i>Data collection and baseline analysis</i> |
| | <u>Component 3</u> | <i>Capacity building</i> |
| | <u>Component 4</u> | <i>Pilot implementation</i> |
| | <u>Component 5</u> | <i>Awareness-raising and follow-up</i> |
| Phase II-A | <u>Component 6</u> | <i>Increase the number of institutions and projects that benefit from improved data availability and analytical tools</i> |
| | <u>Component 7</u> | <i>Strengthen capacity in data collection, management and analysis</i> |
| Phase II-B | <u>Component 8</u> | <i>Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices³</i> |
| | <u>Component 9</u> | <i>Strengthen capacity in assessing and providing drinking water and water quality management initiatives</i> |
| Phase III | <u>Component 10</u> | <i>Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices</i> |
| | <u>Component 11</u> | <i>Strengthen management and replication capacity for environmental management options</i> |

READINESS

24. In most aspects, the Project's partners appear to have been well prepared to undertake this Project. Certainly UNEP were ready, having designed the Project. The agency was also well experienced with ESTs, especially those in water provision, wastewater, and wetland management. It had also been a leading agency in cataloguing the degradation of the Iraqi Marshlands, and having provided environmental assistance in many post-conflict situations in countries in Africa, Asia, and Europe, was well-placed to provide the necessary assistance. UNEP's Project design also paid particular attention to the special constraints of local implementation within Iraq and included appropriate responses. These included:

- anchoring a project implementation unit within the MoE to provide technical support and liaison;
- employment of a national coordinator;
- capacity building of Iraqi experts and then using that built capacity for actual implementation (a process in the TET's view that is not carried out widely enough in many projects);
- contracting UNOPS to assist in local implementation; and
- coordination with other UN agencies and particularly with the other UNEP project recently launched in Iraq, *Strengthening Environmental Governance*.

All of these were implemented successfully.

25. The Project was launched in September 2004 with a two-day roundtable meeting held in Amman, Jordan, to provide a coordinated response between the various UN and bilateral organisations supporting initiatives in the region to facilitate sound marshland management. This acted effectively also as an inception meeting providing a platform to discuss the Project; to analyse the current status of other various initiatives taking place in and for the Marshlands, both environmental and otherwise; and to discuss and coordinate the implementation plan from thematic and institutional perspectives. As a result, all partnership arrangements were clarified, and roles and responsibilities fully agreed and understood. Undoubtedly, this meeting laid the groundwork for the excellent cooperation between the Iraqi stakeholders and the Project team that followed. The people interviewed from the main Iraqi stakeholders (MoE, Ministry of Water Resources (MoWR), Centre for Restoration of the Iraqi Marshlands (CRIM), Ministry of Municipalities and

³ The wording of Components 8 and 10 are the same but the evaluation will consider each as a separately-funded item.

Public Works (MoMPW), the governments and some NGOs) as well as the National Coordinator all indicated that:

- the Project was clear to them;
- there were sufficient human resources and a suitable environment to start the work.
- all three ministries involved had departments located in each governorate where staff were involved in the activities of the Project; and
- the NC underwent training at the beginning of his contract and was provided with the necessary support from UNEP;

but in two instances the local drinking water authorities seem less ready – in Thi-Qar they appear to have been informed about Badir Al-Rumaiadh only when they were told it was to be handed over to them, and in Basra there appears to have been disagreement over siting a reverse osmosis station at Al-Masahab.

26. The only issue that appears to have caused problems is that the international community mistook just how low the baseline capacity was, and more importantly, just how low it would go as a result of a post-conflict situation dissolving into conditions of serious conflict. A number of interviewees indicated that in-country implementation mechanisms were, or became, grossly inadequate, e.g. there were serious difficulties in transferring monies to pay staff and contractors, and in other aspects of administering contracts. Also, there were serious political imperatives from the international community to be seen to be doing something to help Iraq and to produce results. The original concept to run one-year projects in accordance with ITF requirements and subsequently to expand them to meet additional requirements also “*proved to be a bad idea*” because this resulted in an enormous amount of money flowing at a time when the systems were “*beyond chaotic*” although the TET has learned subsequently that some of the challenges related to fund transfer had much to do with lack of financial transfer mechanisms that were deemed acceptable to UNEP. In retrospect, despite the pressure on the UN system to reconstruct the country quickly, it may have proved more effective to have had a cascading phased approach because the in-country capacity was just not available to do it all in one hit. This Project proved lucky in that it did not have a requirement for massive engineering processes or the importation of expensive technology, and the Project *per se* was not the direct target of any terrorist strikes.

#3

Lesson learned: Too much international aid at one time may overwhelm limited national capacities.

All international and Iraqi agencies concerned displayed good levels of readiness, and this was complemented by a very good inception phase with high levels of coordination with agencies and other projects working in the area. The only problem issue was that the international community mistook just how low the baseline capacity was and how bad the security situation would get, but ultimately, the simplicity of the Project’s design bequeathed a robustness to the Project that saw it through the myriad of implementation problems that subsequently arose, hence preparation and readiness have been evaluated as **Satisfactory**.

PROJECT RESULTS

ATTAINMENT OF OBJECTIVES

Summary of Achievements

27. The Iraqi Marshlands Project was initiated in order to respond to Iraqi priorities in the Marshlands in an environmentally sound manner in the post-conflict period, and grew into one of the largest environmental projects conducted within the framework of the UNDG-ITF. Relatively simple in concept and scope, the Project was implemented during exceptionally difficult security conditions at the height of the insurgency which effectively turned a post-conflict situation into one of actual conflict. When the Project commenced in 2004, the UN security management classification in Iraq was at Phase V – Evacuation. This signified that the security situation had deteriorated to such an extent that all international staff were required to leave without exception. The security problems meant that no international staff could visit Iraq; terrorism claimed the lives of several Government officials associated with the Project and others resigned; field

activities were delayed; and activities had to be significantly adapted; to name but a few of the problems. Notwithstanding this, the Project implemented all of its intended activities, including those of two additional phases introduced on the back of its initial successes, which resulted in considerable benefits for Marshland restoration and the people who live there. It is a testament to the skill and dedication of those involved, not just the Project's staff but the Iraqi counterparts involved, that such success was achieved in such difficult circumstances.

Overall, the Project has achieved all of its major relevant objectives and yielded satisfactory global environmental benefits, with no significant shortcomings, and hence its attainment of objectives and results is evaluated as **Highly Satisfactory**.

28. Key Project achievements include:

- supply of safe drinking water for up to 25,000 people in seven Marshland communities through provision of seven drinking water stations with over 23 km of water distribution pipes and over 127 common distribution taps;
- proving the feasibility of using alternative energy to power water EST stations;
- provision of a constructed wetland sanitation system to serve c.170 inhabitants facing health hazards from untreated wastewater discharges;
- implementation of wetland rehabilitation and reconstruction initiatives using phytotechnology to improve the water quality of water for re-flooding the Marshlands, including extensive monitoring programmes;
- extensive data (water quality, satellite image analysis and remote sensing), experience on suitable options (what options worked where, and how) and policy and institutional needs assessments, which will serve as inputs when formulating a long-term management plan to benefit the people and ecosystems of Southern Iraq;
- establishment of Marshlands Information Network (MIN) with Arabic and English interfaces to share data among various Iraqi institutions, with training on system management, through server hardware and software procurement and installation in four locations within the MoE, as well as in the MoWR, MoMPW, Nature Iraq, and UNEP-DTIE-IETC, and with information also uploaded to the Marsh Arab Forum, Thi-Qar University, and other local institutions;
- development of Iraqi Marshlands Observation System (IMOS) to monitor re-flooding and change in vegetation, in cooperation with UNEP PCDMB and UNEP Division of Early Warning and Assessment;
- institutional capacity assessment for the Ministry of Environment was conducted by UNEP PCDMB;
- execution of a demographic and socio-economic survey of 199 Marshland villages and a survey of solid waste management and characterisation in nine cities in partnership with Thi-Qar University. to provide inputs for local and national level policymakers to identify local needs and priorities for interventions;
- enhancement of the capacity and knowledge of Iraqi decision-makers, technical experts and community members through two study tours, and 14 international and ten domestic training courses with 477 training placements (25% women), covering policy and institutional elements, technical knowledge, community engagement, and analytical methods; and
- raising awareness and increasing the practical knowledge about environmental conservation and personal hygiene through community initiatives for more than 1,100 women in Marshland communities.

29. The main problem areas identified by the TET are:

- weak logical frameworks;
- inadequate consideration of the bigger picture regarding availability of water;
- questionable relevance of the phytotechnology restoration aspects; and
- questionable relevance of post-conflict mechanism as suitable vehicle for long-term environmental restoration project.

30. A Review of Outcomes to Impacts is given in Table 5 and a summary evaluation by Project Output is given in Table 6. The lack of targets and quantification of the logframe indicators makes any attempt to provide a more detailed evaluation of the level of achievements, as would be usual, redundant. A description of Project achievements is given below by Project Outcome while key sectoral and cross-cutting issues are discussed in the ensuing sections.

Development Objective Indicators

31. Development objectives are those to which the project will *contribute towards* but which are not expected to be achievable within the lifetime of the project. The objective is well phrased and relevant to the Project's ability to influence but the measurable indicators are weak because they are not SMART.

- Indicators of marshland conditions, including water quality, availability of water and sanitation, and biodiversity
- Assessments, restoration projects, and policy formulation that endorse the integrated water resource management concept for the Marshland area and at the national level
 - Neither of these is worded as a measurable indicator should be and hence cannot be assessed in any meaningful way. The best the TET can do is to point out that the Project has provided safe drinking water for up to 25,000 people, but that its attempt to provide sanitation has failed, mainly because of the drought. The phytotechnology used to demonstrate improvements to the quality of water for restoration of the Marshlands was showing generally positive results at both of the two sites, before these also fell victims to the drought.
 - Significant efforts were made to raise the technical and institutional capacity of various Ministries and to improve information sharing through establishment of the Marshland Information Network. The Project has undoubtedly made contributions towards establishing a
 - management plan, not least through its cooperation with the Italian initiative to develop a New Eden Master Plan for integrated water resources management, however while these have undoubtedly had significant effects, neither a strategy nor management plan for the Marshlands is yet in place, although a follow-up UNESCO-UNEP project is working towards this.

Immediate Objective Indicators

32. The Immediate Objective is something that the project *is trying to achieve in its lifetime* or shortly thereafter, and is a key element in the M&E framework because it defines the project's target. Again, the wording of the Objectives are fairly tight and relevant, but the large number of indicators (15) and the vague wording means that they are little more than "throw-away" ideas reflecting inadequate thought over how they are to be used for management feedback and evaluation.

- Baseline analysis and reports inform policy and technical response within this Project and beyond.
 - Not measurable. Highly likely that technical material from the Project has been used to influence policy and technical response, but the extent is impossible to gauge.
- Marshland Information Network established and access facilitated.
 - MIN established and operating, if inefficiently, in September 2010.
- Number of analyses and reports that establish the baseline conditions and chronicle changes of the Marshlands.
 - Three surveys completed on demographic/socio-economics and waste management and characterisation, plus a number of analyses of water quality data.
- Number of trained people using their acquired knowledge as policy-makers and technical experts
 - Data unavailable. The TET attempted to obtain an indication of this through a questionnaire but obtained no responses (see paragraph 3).
- EST options identified and implemented

- Successful. ESTs identified and installed for drinking water (six reverse osmosis units, nine household stills), sanitation (one constructed wetland), and water quality improvement sites (one planted and one natural phytotechnology pilots).
- Number of people gaining access to safe drinking water and sanitation
 - The capacity of the six new and one refurbished drinking water stations is to supply enough water for 25,000 people although the number actually using them at present is less. Fuel and power shortages mean that they are also working at levels much below their design capacity.
- Improvements in water quality
 - Too vague to assess.
- Public Health indicators on water-borne diseases
 - Not available to the TET.
- Expansion of restored marshland area and suitable habitats
 - Again too vague and irrelevant. The total amount of marshland restored by December 2010 was 2,294 km² (CRIM figures) but this is not a direct result of this Project.
- Increased number and diversity of Marshland and migratory species
 - Again too vague and irrelevant. There are strong indications⁴ that important (endemic or threatened) migratory birds are returning to the Marshlands, e.g. Iraq Babbler (*Turdoides altirostris*), Basra Reed Warbler (*Acrocephalus griseldis*), and Marbled Teal (*Marmaronetta angustirostris*), but again this is not as a direct result of this Project.
- Needs for policy and institutional strengthening identified
 - The final session of the Final Evaluation Meeting (for Phase III) held in Kyoto, Japan, on 3rd September 2009 included a discussion on what future requirements were needed, including accession to MEAs.
- Results of this Project reflected in follow-up coordination project
 - A follow-up UNEP-UNESCO project entitled “*Natural Cultural Management of the Iraqi Marshlands as World Heritage*” has been established to work towards a longer-term management system through the World Heritage inscription process. This project is considered as one of the two official priority projects by the MoE.
- Integrated water resource management mentioned in long-term policy planning documents and Marshland plan and national policy
 - Little overt indication, but this concept is central to the UNEP-UNESCO project mentioned above.

Effectiveness

Review of Outcomes to Impacts

33. Table 5 provides a review of the likelihood of outcomes being translated into intended impacts using the recently-introduced methodology described in paragraph 5, with alterations because of logical gaps described in paragraph 6.

⁴ <http://www.birdlife.org/community/2011/01/miracle-in-the-marshes-of-iraq/>

TABLE5 : REVIEW OF OUTCOMES TO IMPACTS AT THE END OF PROJECT SITUATION

| Component | Findings | Review of Outcomes to Impacts ⁵ |
|---|---|--|
| Component 1: Support for strategy development and coordination | The PIU was established within the MoE. Many meetings were organised to coordinate the activities of donors agencies and Iraqi stakeholders, but neither the documents examined nor the officials interviewed indicated that a specific national marshland restoration strategy was developed. Nonetheless, the Ministry of Planning and Development Cooperation has issued a five-year plan (2010-2014) nationwide which includes the Marshlands, but is mostly directed at infrastructure development. UNEP-UNESCO are currently working on a longer-term management framework for the marshlands. | BC : Moderately Likely |
| Component 2: Data collection and baseline analysis | A technical meeting was held in 2005 and a water quality and biodiversity assessment was conducted at six selected sites in the marshlands. Three sets of portable water quality equipment were provided to the MoE. The Marshland Information Networks (MIN) was established using ESTIS to facilitate the collection, storage and analysis of baseline data, and servers were installed in five locations. The Iraqi Marshlands Observation System (IMOS) was developed to monitor the re-flooding and associated changes in vegetation cover. The Project fully delivered its intended outcomes but after hand-over of MIN and IMOS to the relevant Iraqi authorities the former has not been operating efficiently which gives rise to concern over whether progress towards the intended long-term impact can be achieved. | AB : Highly Likely |
| Component 3: Capacity Building | Targeted training was provided to almost 500 personnel from government agencies, governorates and communities using a training of trainers model. Courses were provided under three broad categories of policy and institutional, technical, and data management training, largely in an international setting, but also through ten secondary courses given inside Iraq. It is clear that the Project delivered its intended outcomes but the TET cannot establish direct evidence that the training has been put to lasting use, e.g. the people currently in charge of the MIN indicate that more training is required. Inevitably, some trainees appear to have moved on to other posts or left Iraq, but many remain in place. | AC : Moderately Likely |

⁵ See Appendix 7 of TOR in Annex I.

| Component | Findings | Review of Outcomes to Impacts ⁵ |
|---|--|--|
| <p>Component 4: Pilot Implementation</p> | <p>This component needs to be divided into three generic sections for ROtI analysis:</p> <p><u>Drinking water provision:</u> Five reverse osmosis units and a conventional sedimentation/filtration unit were provided by the Project and handed over to the Iraqi authorities in working order. Subsequently, maintenance has taken place but at times has been inadequate with five of the six having been out-of-order for various periods or have had other significant problems associated with them (although no fault of the Project). The Project clearly delivered its intended outcomes and despite the subsequent problems, intermediate states have been achieved that clearly indicate they can meet the intended long-term impact, not least because there appears to be a level of replication involving tens of RO stations in the Marshlands.</p> | <p>AA : Highly Likely</p> |
| | <p><u>Sanitation:</u> The Project produced the first demonstration of this already-known phytotechnology in Iraq. Unfortunately, the site has suffered from the drought and the canal designed to carry wastewater has been dry since mid-2008. The project has been abandoned and all equipment removed since shortly thereafter. The Project again delivered its intended outputs but events have since conspired against it, and this part of the Project has dead-ended.</p> | <p>AD : Unlikely</p> |
| | <p><u>Wetland restoration:</u> The Project used the same phytotechnology to demonstrate the capacity of vegetation to improve water quality by building dykes, regulating water flows and planting a small area with reeds. Despite some security concerns the system was reported as functioning well, if below design capacity when handed over in 2006. Unfortunately at the time of the TE, drought had affected the site which had been abandoned and no further data were being collected since mid-2008.</p> | <p>AD : Unlikely</p> |
| <p>Component 5 : Awareness raising and follow-up</p> | <p>Many events and materials were produced to showcase the Project and the issues affecting the Iraqi Marshlands including international meetings; films; public meetings, conferences and lectures; magazines and booklets; and press coverage. Although there is no evidence available that quantifies the effects of this awareness raising, it is clear that international follow-up succeeded during the lifetime of the first phase and additional funding was secured to extend and expand the Project.</p> | <p>AA+ : Highly Likely</p> |

| Component | Findings | Review of Outcomes to Impacts ⁵ |
|--|---|--|
| <p>Component 6 : Increase the number of institutions and projects that benefit from improved data availability and analytical tools</p> | <p>The Project undertook studies on demographic, social and economic conditions and waste management aspects and uploaded them to the MIN. It evaluated data sharing tools and additional MIN servers were provided and installed at the MoMPW and Thi-Qar University. UNEP, MoE, MWR, MoMPW signed an MOU to manage the MIN sites and upload and analyse additional data. An assessment of gaps in marshland management activities was conducted at an evaluation meeting. However, no use appears to have been made of the survey data and with the MIN operating inefficiently (see also Component 2 above) there appear to be no forward linkages to intermediary states.</p> | <p>AC : Moderately Likely</p> |
| <p>Component 7 : Strengthen capacity in data collection, management and analysis</p> | <p>Training courses on various aspects of the MIN were held in Bahrain and Shiga. The Project facilitated three secondary courses in the three southern governorates of Iraq to provide training to a larger number of people on MIN usage and management. The Project fully delivered its intended outcomes, but concerns over efficiency and training expressed under Components 2 and 3 above gives rise to concern over whether progress towards the intended long-term impact can be achieved.</p> | <p>AB : Highly Likely</p> |
| <p>Component 8 : Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices</p> | <p>An additional reverse osmosis drinking water station was established in Al-Ghreej village in Thi-Qar in 2008 and handed over to MoMPW in 2009. See also Component 10.</p> | <p>AA : Highly Likely</p> |
| <p>Component 9 : Strengthen capacity in assessing and providing drinking water and water quality management initiatives</p> | <p>An international workshop on sustainable management of the Iraqi Marshlands was held in Kyoto, and pre-training and training courses on drinking water and sanitation provision were held in Iraq and in Shiga, Japan. A total of 712 women from 15 marshland villages participated in an environmental and health awareness campaign. Some awareness materials were revised. Again, the Project delivered all its intended outputs, but the TET cannot find hard evidence which clearly indicates that there was prior allocation of responsibilities for after project funding, nor that outputs can progress towards the intended long-term impact.</p> | <p>BB : Likely</p> |
| <p>Component 10 : Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices</p> | <p>This component needs to be divided into three sections for ROtI analysis: <u>Photovoltaic energy drinking water:</u> Pilot projects demonstrated alternative energy sources for the provision of drinking water using photovoltaic augmentation of the water treatment plant in Al-Ghreej. At the time of the TE, the drinking water unit had been out of operation for a month, but the MoMPW indicated that maintenance was simply slow, while local people expressed satisfaction with the unit.</p> | <p>AA : Highly Likely</p> |

| Component | Findings | Review of Outcomes to Impacts ⁵ |
|--|---|--|
| | <p><u>Solar stills</u>: These were installed in nine households, three in each of three Governorates. Unfortunately these have not been a success and the reasons remain unknown. In Basra, all three units have been dismantled. In Thi-Qar, one had been dismantled for household maintenance and the other two were reported as operating, but inefficiently. In Missan, reports indicated that one was operating above design capacity and the other two were inefficient.</p> | AC : Moderately Likely |
| | <p><u>Wetland restoration</u>: The Project used phytotechnology to demonstrate the capacity of natural vegetation to improve water quality associated with agricultural and domestic wastewaters. Early M&E reports showed positive indicators for the improvement of water quality, but the assumption that Auda Marsh would remain wet has proved fatal and the experiment has been stopped by water shortages resulting from large-scale pumping operations on the main canal south of Nassiriyah (which in itself suggests a continued lack of coordination to management of the Marshlands). It is possible that since the measures designed to move towards intermediate states had begun to produce positive indications of improved water quality, the underlying concept may continue to be used and scaled-up in subsequent operations, but as yet there is no evidence for this.</p> | AD : Unlikely |
| <p>Component 11 : Strengthen management and replication capacity for environmental management options</p> | <p>Twelve Iraqis participated on a training course held in Syria on Sustainable Management of the Iraqi Marshlands. Four-hundred women from nine communities in the Marshlands were provided with practical demonstration of marshland management and health linkages and received basic kits, but the TET cannot establish if these are still being used. A Final Evaluation meeting was held with Iraqi stakeholders, and donor and UN representatives.</p> | AB : Highly Likely |

As a result of the review of outcomes to impacts (ROtI), the overall likelihood of impact achievement, the Project is expected to achieve most of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings, hence effectiveness is evaluated as Satisfactory.

ACHIEVEMENT OF PROJECT OUTPUTS AND ACTIVITIES

34. As the above ROtI analysis shows, the Project delivered all of its intended outputs and activities, thereby providing significant benefits to the local beneficiaries. To a great extent as a result of this effective field implementation, the Project and those responsible for it were awarded the 2007 UN21 Award commendation from the UN Secretary General as one of the top 15 UN projects, and the UNEP Completion Report indicates that the Project has been lauded by community groups for making a real effort at engaging local communities and has been regarded as a model of international environmental cooperation by the Minister of Environment of Iraq. Full details of the Project's implementation can be found in the Completion Report, and it is not the intention of this section to repeat that information here, rather just to provide sufficient detail and discussion to justify an evaluation rating for each component. The text therefore provides brief details of the activities undertaken against the activities listed in each of the logframes. Table 6 provides a summary of these evaluations, each hyperlinked to the appropriate text below. The evaluations are taken at the point of delivery, not at the time of the evaluation itself when subsequent factors have had an

influence. However, the latest condition of the various interventions is provided wherever the TET has details.

TABLE 6: EVALUATION OF THE END OF PROJECT SITUATION AS PER THE LOGFRAME

| Component | Evaluation* | | | | | |
|---|-------------|---|----|----|---|----|
| | HS | S | MS | MU | U | HU |
| Phase I | | | | | | |
| Component 1 Support for strategy development and coordination | | | | | | |
| Component 2 Data collection and baseline analysis | | | | | | |
| Component 3 Capacity building | | | | | | |
| Component 4 Pilot implementation | | | | | | |
| Component 5 Awareness-raising and follow-up | | | | | | |
| Phase II-A | | | | | | |
| Component 6 Increase the number of institutions and projects that benefit from improved data availability and analytical tools | | | | | | |
| Component 7 Strengthen capacity in data collection, management and analysis | | | | | | |
| Phase II-B | | | | | | |
| Component 8 Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices⁶ | | | | | | |
| Component 9 Strengthen capacity in assessing and providing drinking water and water quality management initiatives | | | | | | |
| Phase III | | | | | | |
| Component 10 Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices | | | | | | |
| Component 11 Strengthen management and replication capacity for environmental management options | | | | | | |

* Note: HS = Highly satisfactory; S = Satisfactory; MS = Marginally satisfactory; MU= Marginally unsatisfactory; U = Unsatisfactory; HU = Highly unsatisfactory. Components are hyperlinked to relevant section.

The Project has generated some real benefits in supporting the environmental management of the Iraqi Marshlands through technological support, socio-economic improvements, improved policy coordination, more effective data and information management, and significant capacity building in technical, policy and institutional aspects of Marshland management; hence the achievement of outputs and activities is evaluated as **Highly Satisfactory**.

Component 1: Support for strategy development and coordination

35. The Project Implementation Unit (PIU) was established within the MoE in November 2004, and the Project established a framework for maintaining cooperation and collaboration with other stakeholders in marshland management activities. The Project organised a roundtable meeting in September 2004 in Amman, Jordan, to discuss the development of a national marshland restoration strategy⁷. Given the significant level of international interest in the Iraqi marshlands, several donor-supported initiatives commenced in the post-conflict period and some coordination activities were already extant in the area when the Project began. However, at the third donor coordination meeting on the Iraqi Marshlands held in October 2004 and organized by the Italian Government, UNEP was nominated to serve as liaison for donor coordination by both Iraqi and donor institutions, and organised a donor coordination meeting in Paris in November 2005. Subsequently, UNEP participated in four other donor coordination meetings organised by the Italian (three) and Canadian Governments in 2006/7. These and other donor coordination activities provided a means for discussing the contributions and status of various Iraqi-led and donor-supported initiatives supporting and facilitating the establishment of a longer-term Marshlands management plan structure, as well as integrating environmental requirements into the national coordination for marshland management. The Project undertook an institutional capacity assessment for the MoE through the UNEP Post-Conflict and Disaster Management Branch (PCDMB) and made recommendations.

⁶ The wording of Components 8 and 10 are the same but the evaluation will consider each as a separately-funded item.

⁷ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=47007BD9-CD1F-4E34-B4EB-0E62F7885B58

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

36. While the Project has fulfilled its objectives, the TET notes that none of the documents examined, nor the officials interviewed, indicated that a management strategy or plan has yet actually been developed. There is a Master Plan for the re-flooding of the Marshlands developed between the MOWR and the Italian Ministry of Environment through the Italian company SGI, which began implementation in late 2008 and is due for completion in 2011, but this is largely about the engineering works and water flows needed for re-flooding. The MoWR has also contracted two Italian companies to establish a 30-year plan for water resources in Iraq including the Marshlands, to update the previous 25-year plan, called “*The Water Budget*” prepared with help from the Soviet Union. Moreover, the Iraqi Government has subsequently established a two-volume, five-year National Development Strategy (2010-2014) which describes the challenges, resources, indicators, etc. in volume one and a list of necessary infrastructure projects in volume two, and the Marshlands are covered within this plan. However, there remains no national marshland restoration strategy either emanating as a direct or indirect outcome of the Project, and indeed the current UNEP-UNESCO “*Natural Cultural Management of the Iraqi Marshlands as World Heritage*” project seeks to achieve this.

Component 2: Data collection and baseline analysis

37. Following a technical meeting on data collection and analysis of water quality in February 2005⁸, water quality and biodiversity assessments were conducted at six sites in the Marshlands between April and December 2005 and the results analysed and interpreted⁹. Three sets of portable water quality monitoring equipment were provided to the MoE, identical to those purchased by another UNEP project thereby enabling the MoE to carry out large-scale field assessments while minimising training and maintenance requirements. The Project established the Marshlands Information Network (MIN) in English¹⁰ and Arabic¹¹ to improve the availability and capacity to share environmental and social information about the Iraqi Marshlands. It was developed on the back of the Environmentally Sound Technology Information System (ESTIS) an innovative, multi-language platform developed by IETC in 2003, with an Arabic interface. This component procured and set up the necessary server equipment in five locations – four in the MoE offices in Baghdad, Basra, Missan and Thi-Qar, and one in the Centre for Restoration of the Iraqi Marshlands (CRIM) of the Ministry of Water Resources. In addition, the Iraqi Marshlands Observation System (IMOS)¹² was developed to monitor re-flooding and changes in vegetation to provide a systematic assessment of changes to better understand the dynamics and success of the wetland recovery process. It was designed as a pragmatic decision-making support tool to assist stakeholders to modify and adapt restoration plans based on valid scientific information, and built heavily upon UNEP’s earlier satellite imagery work. Its design and coordination were carried out by the PCDMB in collaboration with the Global Resource Information Database-Europe of the UNEP Division for Early Warning and Assessment using an approach combining satellite sensors collecting data at various scales with multi-temporal analysis to observe the evolution of marshland re-flooding.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

38. At the time of the TE, the Iraqi authorities report that since handing over the MIN and the IMOS to them, they have not been working efficiently. The major problem appears to be the increasing lack of continuous electrical power which in the cities is reported to be intermittent with 2-3 hours on followed by cuts of a similar length. Although the organisations hosting servers do have back-up diesel generators, there appear to be ineffective administration of them and they frequently do not work as they should. This interrupted power supply means that there are serious difficulties in updating various types of software and data, particularly from overseas over the Internet, meaning that much of the software is now increasingly

⁸ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=95DD3A1C-956B-4B4F-9A17-2B95980667BC

⁹ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=78547CB6-F6BC-4C96-AF1A-32B3B6D7C549

¹⁰ http://jp1.estis.net/communities/min_eng/

¹¹ http://jp1.estis.net/communities/MIN_Arabic/

¹² <http://imos.grid.unep.ch/>

out-of-date; in turn providing further problems because of mismatches with software versions run by other software providers. Operators report that some people, particularly new recruits, require more training but since some of those originally trained overseas by the Project have been promoted, lack time or motivation, the institutions require more money to train new trainers. In part due to this, new information is not being uploaded to the system which in terms of data is becoming increasingly out-of-date. The TET found that the MoWR had largely given up on the system and instead was, with CRIM's help, using the MIN to build its own website.

Component 3: Capacity building

39. The Project developed training kits with handbooks in Arabic and English for both trainers and participants that were used to train over 300 Iraqi officials, researchers, and community leaders in various aspects of wetland management. Training programmes were organized in 2004/5 in cooperation and coordination with leading institutions thus:

- four courses were held for policy and institutional aspects¹³ in Egypt, Japan, and Jordan; and
- four courses were undertaken on technical aspects¹⁴ in Egypt, Japan, and Syria.

Study tours¹⁵ were organised in Japan in August and December 2006 on ESTs, the latter in conjunction with an international workshop with a delegation led by the Iraqi Deputy Minister of Environment. Two training courses were also held in Jordan in February and March 2006 on data management and analysis¹⁶. Six separate secondary training courses¹⁷ were organised within Iraq (Baghdad, Thi-Qar, and Basra) in December 2005 where people who had participated in the training courses held outside Iraq helped to organize and deliver the lectures.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

40. The TET attempted to contact a wide selection of the people trained through questionnaires, but unfortunately were unsuccessful in eliciting a meaningful number of responses (see [Annex V](#)). However, many of the people interviewed remained in relevant posts and reported that they were still using the training provided by the Project.

Component 4: Pilot implementation

41. The Project organised a technical meeting in February 2005 to discuss priority sites proposed by Iraqi institutions for interventions to provide water, sanitation, and marshland management pilot projects¹⁸. The Iraqi ministries and the Marsh Arab Forum proposed 18 candidate sites with two duplicate sites and the participants then discussed and analysed the information provided in the fact sheets, including site suitability based on technical criteria and geographical distribution among the three governorates. Consensus was reached on six sites and the local community representatives participating in the meeting pledged to facilitate access and provide security for pilot implementation. Field assessment and preliminary design of these six sites were carried out later in the same month. Drinking water was provided in six villages¹⁹, namely Al-Kirmashiya, Al-Masahab, Al-Jeweber, Al-Hadam and Al-Sewelmat using packaged low-pressure reverse osmosis units, while an existing compact unit using conventional sedimentation-filtration/chlorination was rehabilitated at Badir Al-Rumaidh. Water distribution networks with common taps were also installed. These facilities, worth \$4.68 million and with the capacity to serve up to 22,000 residents, were operational in January 2006. The Project continued to support their operation and maintenance for over a year after their commissioning, and in June 2007 they were handed over to the MoMPW complete with specifications and as-built drawings and operational and maintenance manuals from the manufacturers.

¹³ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=1E2144B3-8186-41DE-B390-94EDF2C4E07A

¹⁴ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=1E2144B3-8186-41DE-B390-94EDF2C4E07A

¹⁵ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=8E8C558D-9305-493F-AECB-7EE28F1528B4

¹⁶ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=1E2144B3-8186-41DE-B390-94EDF2C4E07A

¹⁷ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=E4ED5E6F-D056-490A-A274-5F5A8F6B856D

¹⁸ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=A3AC3610-3981-4177-85A6-2B59FF630854

¹⁹ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=FB801A6A-9E1F-4403-B357-F13BE9291DA6

42. Sanitation was provided through an EST called “constructed wetlands” to treat wastewater in Al-Chibayish a community of 170 inhabitants²⁰. The original site selected was Al-Hadam, but security for the construction workers proved to be very difficult and there was strong resistance from the community to having a sanitation system built close to their households, and to those households to be serviced also receiving individual direct water connections, a position deemed inequitable. Consequently, the design team and UNEP agreed to move the pilot project to Al-Chibayish. Construction of the facility, which was completed by the end of December 2006, was designed with a surface area of 540 m² to utilize the sub-surface wetland in which water flows through gravel beds planted with native species of reeds which remove organic nutrients and pollutants from the wastewater through biochemical processes in the root zone as well as through uptake by the plants. Pilot wetland restoration was carried out through an MOU with CRIM of the MoWR. Capacity was built on the application of phytotechnology and modelling software to design surface and subsurface artificial wetlands and conduct wetland restoration assessments. The Project involved survey and investigation to select the site at Al-Jeweber and implementation of marshland rehabilitation including regulating the flow of water in an existing outlet from a nearby marsh, construction of dykes, and replanting the area with common reed *Phragmites australis*. Security problems near the end of the pilot project in 2006 temporarily halted its implementation, but on its handover to CRIM, it was functioning well, although below the design capacity.

43. Operators of the drinking water and sanitation facilities were provided with on-site training by the personnel trained abroad at the equipment manufacturer. Trained operators manned the facilities during the period March 2006 to April 2007. Training in the application of phytotechnology was provided through a technical workshop in Amman, Jordan, in June 2005²¹. Independent monitoring and evaluations were undertaken through on-site assessments of the drinking water facilities during January-August 2006²² and of the sanitation and wetland restoration pilot projects during July-September 2007. A broader assessment of ESTs was made using the Sustainability Assessment of Technologies developed by UNEP which evaluated various options for the provision of water and sanitation for the area, and then provided a detailed analysis of the environmental soundness of the options actually implemented²³.

44. The Project supported community-level initiatives²⁴ for marshland management in three governorates based on proposals submitted by local community NGOs, namely the Marsh Arab Council, in addition to the local Environment Directorates, and the Governorate Council of the three governorates, thus:

- Basra: The Environmental Awareness Campaign for Marsh Arabs comprised ten public meetings focussing on key environmental problems of the Marshlands;
- Thi-Qar: The “*Initiative to Raise Awareness of the Dangers of Fishing Using Poison within the Marshlands Environment*”.
- Missan: The “*Initiative to Develop an Understanding Among Marshland Residents in Missan on the Importance of the Marshlands Ecosystem*” comprised an intensive five-day course for religious leaders and a training course for young people on the importance of the marshland environment.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

45. The status of the pilot projects at the time of the TE is given in Table 7.

²⁰ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=9FE1AF93-6FD0-4904-B492-A15C97B17AB5

²¹ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=81AD2149-FFDB-48F0-89C4-1C8DFB133CB7

²² http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=A30AC478-C721-448D-9DCA-302C13874C22

²³ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=FB801A6A-9E1F-4403-B357-F13BE9291DA6

²⁴ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=6FD1E532-D968-470A-A4D7-6BB55D15C31D

TABLE 7 : STATUS OF PILOT PROJECTS AT THE TIME OF THE TE FIELD VISIT

| Project | Status at the time of the TE visit |
|-------------------------|---|
| Drinking water stations | |
| Badir Al-Rumaidh | The operator informed the TET that the station worked for about four months after its handover in 2007, but that it was then out of order for a relatively long time, believed to be until mid 2010. Certainly, photographs in March 2010 show much of the electrics to have been vandalised and there were reports that the pumps had been looted (see Photo 2 Annex IV). However, at the time of the visit, the local authority had recently performed major maintenance including providing the station with pumps and conductors. Some local people have complained about the stress on the local electrical power supply when the station is in operation but the Head of the Water Authority in Thi-Qar indicated that they have no choice in tolerating the reduction of electrical power to their houses during the few hours the station operates because of the shortage of the power supply to the area. |
| Al-Kirmashiya | This pilot project serves a remote village in the real marshland of Thi-Qar. The village is located on a river with only a 5 km long unpaved road as a land route to the village. The station operator indicated that it has been working since 2006 on a normal schedule of the operation of 3-5 hours per day every three days which was adequate to provide the village with drinking water. However, the station had been out of order for a month or so at the time of the TE visit, and a request made to the Thi-Qar Water Authority to provide maintenance. It appears that the Authority is demanding a tax for providing drinking water in rural areas in the same manner as urban areas, but the local villagers are refusing to pay so the maintenance has not yet been carried out. Recent works on the embankment to divert water had caused minor damage to the distribution network to the village but repairs had been effected. |
| Al-Jeweber | The station has been working ever since it was commissioned on a schedule of 2 hours every other day. The operator indicated that local people cooperated in its maintenance but that some stress had been placed on the main distribution network by people installing small pumps and side branches to take the water to their houses. |
| Al-Masahab | This is the only drinking water station implemented in Basra by the Project. According to representatives of Basra Provincial Council and the Drinking Water Authority of Basra, the station worked for six months after its handover but has been out-of-order since then. However, 39 other reverse osmosis drinking water stations are also out-of-order at present in Basra. The Drinking Water Authority has been attempting tender all these to the private sector for investment, maintenance and operation and charging the villagers for the supply of the drinking water as in urban areas. This has not yet been successful. [The site was not visited because it was reported as out-of-order.] |
| Al-Hadam | The station has been operating since handover to the local authority. However, there are a number of problems: <ul style="list-style-type: none"> i. the distribution network suffers from some leaks which are in need of repair. ii. the station's filters need to be replaced (or are in need of maintenance) according to both the representative of the Drinking Water Authority of Missan and the operator. iii. The station is very close to the local electricity network yet it is not connected to it meaning that the station is dependent upon a diesel generator. It is unclear whether connection to the mains network was the responsibility of the contractor or not. iv. The station lacks a room for the operator. It is unclear whether this was not included in the design or whether it was not implemented. v. More regular maintenance of the station is required by the local authority. |
| Al-Sewelmat | The station has been working effectively since its handover in 2007. However, the water level in the intake canal is shallow and the canal requires clearing of sediment, therefore the station had been out of order for about a month at the time of the TET field visit, and the Drinking Water Authority of Missan had approached the Department of Water Resources for such maintenance of the canal. The station is not connected to the electricity network, and there is widespread damage to the distribution network meaning local people have to collect their drinking water in plastic containers directly from the station. |
| Sanitation project | |
| Al-Ghreej | As a result of the drought, the canal which is supposed to carry wastewater to the planted area dried out in mid-2008. Shortly after, the Marshland Research Centre of Thi-Qar University, to which the site was handed over in October 2007, as well as the MoE, decided to abandon the project and dismantle the remaining equipment (mainly pumps). See Photos 5 and 6 in Annex IV . |

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| Phytotechnology pilot projects | |
| Al-Jeweber | The drought has significantly affected the site and it became dry in 2008. No data has been collected since then. The idea of using water from the drain to re-flood part of the marshes has been applied after the end of the Project in cooperation between the central and local governments. As a result, water from the drain has re-flooded the Central Marshes without pre-treatment with phytotechnology. |

Component 5: Awareness-raising and follow-up

46. The Project prepared and distributed to stakeholders a five-minute video and an information brochure on the Iraqi Marshlands Project²⁵ and organised two public meetings on the state of the marshlands and the responses – one an international public symposium held in Tokyo in August 2005²⁶, participants of which included the Japanese Minister of Environment, a high-level delegation from Iraq, representatives of the Iranian and French embassies, of the Italian MoE, and of USAID, together with an associated press conference that raised worldwide coverage for marshland issues; and a public meeting to commemorate Environment Day in Iraq in 2005 to raise public awareness in Iraq about the Marshlands. An informative booklet “*Back to Life*” was published in Arabic, English and Japanese and distributed to the public and also made available on the website²⁷. An International Workshop²⁸ on the management of Iraqi Marshlands was held in Kyoto, Japan in December 2006 with the Iraqi delegation led by Deputy Minister of Environment and comprising high-level officials from key ministries and representatives of communities and academia in southern Iraq. Further phases of the Project (II-A, II-B and III) were successfully developed and finance secured.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

Component 6: Increase the number of institutions and projects that benefit from improved data availability and analytical tools

47. The Project held an initial coordination meeting²⁹ in April 2006 to introduce the objectives of its second phase and to serve as a platform to discuss the data gaps that needed addressing. It organised, and through Thi-Qar University, conducted two major surveys, one on demographic, social and economic conditions³⁰ in 199 marshland villages in sixteen sub-districts, and one on solid waste management in nine small, medium and large towns and cities identified by the MoMPW in the three southern governorates³¹. It found significant reliance on marsh ecosystems for water and livelihoods and a lack of sanitation; access to basic services such as medical care and public health initiatives far below the national average; and severe limitations in current solid waste management practices. The Project also supported the conversion of existing data, and the results from these surveys, onto the MIN for sharing among the relevant institutions, notably the MoE, MoWR, and MoMPW. An evaluation of data sharing tools and methodologies was conducted and recommendations on how to share data, based on a three-tier data system were formulated. An additional MIN node was established through the provision of an additional server at the MoMPW including all hardware, software, and training of the Ministry’s personnel. Modalities were agreed upon with Italian partners for integrating an Italian web-GIS system, and the Project provided the necessary data and information on MIN to the Italian partners for integration.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

48. The TET found that these Ministries concerned were happy with the two large surveys conducted but that no further surveys, either similar or updates, were planned. Unfortunately, there is also no evidence that

²⁵ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=9E56866A-0A4B-4005-9021-F876C504BE0E

²⁶ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=E6083BAA-5C6D-42E2-BA04-3DE8785C9C4B

²⁷ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=57249294-CB30-49E0-98ED-D489469AA93D

²⁸ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=59DC3B53-C398-4E29-9D94-9D5341B84D0C

²⁹ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=87581E52-1B7B-4675-8B4D-5E045BA97D0A

³⁰ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=88D83D74-AACF-40BF-B3FF-FF7B4D0C92CF

³¹ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=199315B6-6018-4343-BC77-DED8CCDEFA7F

any strategic decisions or management changes have been implemented in the Marshlands based on the data emanating from these surveys.

Component 7: Strengthen capacity in data collection, management and analysis

49. A training course was held in April 2006 in Bahrain for 15 participants on the MIN³² and an advanced course and technical meeting in June 2006 in Shiga, Japan. Participants from partner institutions were trained on how to set-up and operate the MIN servers and on how to analyse, present and share available data effectively on the MIN. The initial strategies for undertaking the two surveys described in paragraph 47 were determined³³. In-country training³⁴ was supported in September 2006 with three training sessions held in Basra, Missan and Thi-Qar, each for four participants, to manage the MIN servers in their respective MoE directorates. An evaluation meeting was held in Paris in April 2007 with an Iraqi delegation headed by the Minister of Environment, to assess the activities completed by Phase II-A and to prioritise further gaps for action³⁵.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

Component 8: Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices

50. An additional reverse osmosis drinking water unit was procured and installed in the village of Al-Ghreej in Thi-Qar governorate. The plant was commissioned in mid-2009 and handed over to the MoMPW shortly afterwards. Its current status at the time of the TE is given in Table 8, under paragraph 55.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

Component 9: Strengthen capacity in assessing and providing drinking water and water quality management initiatives

51. A training course was held in December 2007 in Shiga, Japan on providing drinking water through ESTs and water quality management³⁶. The activity that intended to “*Organize an international workshop on Iraqi Marshland management*” used the same workshop held in Kyoto in December 2006 as that under activity “*Convene an international workshop on Iraqi Marshlands restoration*” under Component 5. It is unlikely that the designers intended this given that they would have been aware of the activities planned for Phase I, yet on the other hand the overlap appears great and the Project was presumably trying to maximise cost-effectiveness. The Project was supposed to “*support in-country secondary training*” which it did by apparently conducting pre-training in October 2006 at the Marshes Research Centre of Thi-Qar University. Of the 24 participants, nine were selected to participate in additional in-depth training in Japan. The TET is surprised since this appears to be the reverse of what secondary training should be, i.e. the training of a wider cadre of persons by those trained during the primary training phase (i.e. those in Japan). If it was determined that those going to Japan required pre-training, then it is important that this is carried out, yet in this case it seems to have been done at the expense of the intended secondary training.

52. Local community initiatives were supported through an environmental awareness campaign focusing on women which was conducted in fifteen villages in three governorates. This provided practical guidance and demonstrations to help protect the marsh environment and clarify health impacts³⁷. A total of 712 women were provided with kits (soap/shampoo/toothpaste/feminine hygiene), and were visited again one month later to ensure proper use and knowledge. While the TET applauds the aims, in practice it is hard to see how poor communities will really continue to afford relatively expensive consumer items, even if hygienically desirable. Similarly, the provision of water filter kits presupposes that domestic budgets will

³² http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=0A0541D3-EA66-471F-83C4-2C9231E8E271

³³ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=DB776A75-5866-4BC8-8D51-7E24387D788B

³⁴ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=737A8941-3C54-4878-BD81-B35E6C26D591

³⁵ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=C31540C8-2EC6-4DC3-BE0F-5B97DCA80B4B

³⁶ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=355DAE61-82C5-44E5-A95C-45F1E91B8D70

³⁷ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=56372FCF-05A0-4059-B788-7C90656A6D3E

stretch to affording replacement filters. Revisions were also made to the booklet “*Back to Life*” (see paragraph 46).

This Outcome has achieved all of its major objectives but with some minor shortcomings and has yielded most of the expected environmental benefits, hence it is evaluated as **Satisfactory**.

Component 10: Increase the number of residents and community groups that benefit from improved access to safe drinking water and sound environmental management practices

53. This Component piloted two projects using alternative energy for drinking water provision. The first was the water treatment unit at Al-Ghreej which was augmented to run using a photovoltaic system with a peak capacity of 3kW. The Project designed, procured, and installed the system in 2008 and it was handed over to the MoMPW in mid-2009. The second was a household-level demonstration of solar still devices to assess the capacity and suitability of a household-level EST for drinking water without the need for either fuel or electricity. A solar still distils water by harnessing the heat of the sun to evaporate untreated water and collect the condensate for potable use. Since this EST does not require a power source such as electricity it could find wide applicability in rural areas without basic power services. The pilot project installed units in nine rural households. The first set of equipment delivered in 2008 had manufacturing defects and did not meet the procurement ToR and hence they were replaced with commercially manufactured devices from the United States in December 2009. The MoE assumed the responsibility for their installation and monitoring.

54. The Component also conducted a pilot project to demonstrate viable options to minimise further damage to the wetland and to assess the feasibility of increasing the availability of water for longer-term marshland restoration by using constructed wetland technology. Auda Marsh in Thi-Qar Governorate, which was being re-flooded with overflow from the Main Drain used to drain wastewater from Baghdad and upstream areas, was identified as the pilot site. Sampling surveys showed that this water did not meet some of the parameters included in Iraqi Standards for wastewater discharged to water courses, or for raw water sources for drinking and hence the quality needed improvement. Fieldwork carried out in agreement with the MoE featured five monitoring locations determining 18 water quality and two biodiversity monitoring parameters. These were collected and analysed three times each over a seven-month period in 2008. The pilot system showed reduction in concentrations of some pollutants but with inconsistencies. Considering the variability this natural system, longer term monitoring and control of operating conditions was deemed to be necessary to reach definitive conclusions. Such wetland improvement activities also require longer-term sustained availability of water flow through cooperation and coordination with the MoWR. The MoE subsequently requested such cooperation.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

55. The status of the pilot projects at the time of the TE is given in Table 8.

TABLE 8 : STATUS OF PILOT PROJECTS AT THE TIME OF THE TE FIELD VISIT

| Project | Status at the time of the TE visit |
|--------------------|---|
| Alternative energy | |
| Al-Ghreej | This site was handed over to the Water Authority in Chibayish, and the station’s operator indicated that it works for three hours per day every three days, which is sufficient to meet the need of the local community. However, at the time of the visit, it had been out of order for a month and was due to be repaired by the Water Authority. Members of the local community met by the TET were satisfied with the service provided, although some asked for an extension to the distribution network, which is currently 1 km long. |

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| Solar stills | <p><u>Missan</u>: Solar stills were provided to one household in each of the district of Kahala and sub-districts of Mishara and Salam. According to a representative of the Environmental Department of Missan, monitoring of these indicated that in Mishara the equipment worked at a rate above its design capacity (difficult to explain) while the other two were operating but inefficiently.</p> <p><u>Thi-Qar</u>: The stills in Thi-qar were not encouraging. In one household visited, the equipment had been dismantled to undertake maintenance of the house itself (see Photo 8 in Annex IV).</p> <p><u>Basra</u>: The TET was informed by representatives of the Basra Provincial Council and the Directorate of Environment in Basra that all solar still equipment had been dismantled and as a result visits were not worthwhile. The Basra Drinking Water Authority had no information on this pilot project.</p> |
| Phytotechnology pilot projects | |
| Auda Marsh | <p>Auda Marsh appears to have dried up because of a shortage of the water in the branch of the main drain canal due to the operation of huge pumping stations on the main canal south of Nasyria city in 2009. The survey work has been stopped. The TE visit to the site noticed that the water existed in the inlet and outlet canals but the entire marsh was dry and un-vegetated (see Photo 7 in Annex IV). Previous monitoring and evaluation reports (before Auda Marsh dried out) indicated that there were positive indications of improvements in the water quality.</p> |

Component 11: Strengthen management and replication capacity for environmental management options

56. A training course was organised in April 2008 on wetland restoration and solid waste management entitled “*Sustainable Management of the Iraqi Marshlands*” in Damascus, Syria with 12 participants³⁸. It provided comprehensive overviews on how to strengthen Iraqi ownership and coordination for the longer term sustainability of the Iraqi Marshlands’ management and also featuring multilateral environmental agreements. Local communities were again supported with activities targeting women in nine rural villages in the three governorates that had not previously received support from the Project. As above (Component 9), 400 women were provided with practical demonstrations of marshland management and health linkages, and received basic kits, with follow-up visits made³⁹. Three Phase I pilot sites (Badir Al-Rumaidh, Al-Hadam and Al-Masahab) were monitored for water quality and biodiversity under an agreement with the MoE. Higher concentrations of total dissolved solids and nutrient loading were reported compared to 2005 results, possibly because of the drought, while species richness and biodiversity increased for phytoplankton, zooplankton and macrobenthos compared to 2005 results. The Project evaluation meeting⁴⁰ was held on 3rd September 2008 with the Minister of Environment present. It was evaluated positively by both Iraqi and donor representatives. Follow-up priorities were identified and an initiative to establish a management framework under the World Heritage inscription process received a pledge of support from the Italian Government.

This Outcome has achieved all of its major objectives without shortcomings and has yielded the expected environmental benefits, hence it is evaluated as **Highly Satisfactory**.

PROJECT IMPLEMENTATION

PARTICIPATING AGENCIES

57. The Project has been implemented through the **United Nations Environment Programme (UNEP)**. The **International Environmental Technology Centre (IETC)** of UNEP’s **Division of Technology, Industry and Economics (DTIE)** was responsible for overall project implementation from its offices in Shiga and Osaka, Japan. The Project team was established within IETC with a full time Project Coordinator and a cadre of staff responsible for various technical, information management, and capacity-building tasks as well as administration. In addition, the **UNEP Regional Office for West Asia (ROWA)** was closely associated with the Project, particularly in coordinating with the Iraqi government institutions and providing help and guidance to organise specific project activities in the region. The **UNEP Post-Conflict and**

³⁸ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=6E0DC858-7BA2-4449-AA11-F65E5927F517

³⁹ http://marshlands.unep.or.jp/default.asp?site=marshlands&page_id=466437E3-4307-40E7-854C-42F0707B99FD

⁴⁰ http://www.estis.net/sites/marshlands/default.asp?site=marshlands&page_id=BA3091A5-4D8A-46C1-8E8D-5691A2275877

Disaster Management Branch (PCDMB) was responsible for the establishment and management of a data system for marshland vegetation and water coverage, i.e. the Iraqi Marshlands Observation System (IMOS) as well as related training, and represented UNEP at the UN Country Team in Amman, Jordan until 2006. Implementation support was provided by the **United Nations Office for Project Services (UNOPS)** in particular to assist in administering procurement and local contracts. UNEP had substantive responsibilities for project planning and implementation, while UNOPS had the responsibility to carry out the timely provision of project inputs, local contracting, expenditures, procurement, evaluation and reporting. UNOPS was engaged to assist UNEP in a timely and efficient manner due to the organisation's extensive implementation support experience in Iraq, as well as its presence in Amman.

Stakeholder Participation

58. The Project has worked closely with a large number of stakeholders throughout and some of these played a role in its initial conceptualisation. The line ministry for the Project was the **Ministry of Environment (MoE)**, which was first established in 2003. Key partnerships were also established with a number of local institutions, the key ones of which were the **Ministry of Water Resources (MoWR)**, the **Ministry of Municipalities and Public Works (MoMPW)**, and the **Centre for Restoration of the Iraqi Marshlands (CRIM)**. Since most of the Project's activities on the ground were based in the three southernmost Governorates, close cooperation was also established with the **Governorate Councils** of Basra, Missan and Thi-Qar. The **Ministry of Planning and Development Cooperation (MoPDC)** played an instrumental role in Project clearance and coordination, and participated in key meetings. Interviews with some players verify that collaboration between the Project and these government organisations was close and generally effective, and while some disagreements were reported, these were generally minor and of no greater import than can be found in any project of this size. While the TET did not have access to the Minister of Environment, it is noted that in her Foreword to the UNEP Completion Report, she states that:

“Throughout the UNEP Marshlands project, various Iraqi Ministries took responsibility for direct field implementation of many activities. Such involvement played a very positive role in raising the capabilities of the ministry staff, in addition to helping to achieve the project benefits. The project implementation was conducted in a manner that reflected the commitment of all sides.”

And further on in the same report it states that:

“The project was also regarded as a model of international environmental cooperation by the Minister of Environment of Iraq”.

59. During actual implementation of the Project, the active engagement of stakeholders has been vital in undertaking the activities and in fulfilling the achievements. To this end, extensive cooperation was effected with local communities both individually and collectively through groups such as the Marsh Arab Forums within the three governorates and also involved non-governmental organisations (NGOs) and Iraqi universities. As indicated immediately above, the Completion Report states that:

“The Project ... was lauded by community groups for making a real effort at engaging local communities.”

Crucially, it appears that the involvement of stakeholders in a decision-making capacity was a) greatly appreciated, with many indicating that this was a first for them; and b) that it was fundamental in garnering full engagement and ownership. One of the lessons reported by the Project, which the TET cannot substantiate but that it feels is worth repeating, is that such dialogue proved necessary because there is also a need to diminish mistrust and maintain realistic expectations amongst stakeholders. The implementation and operations associated with the EST facilities required a delicate balancing act, because the communities and tribes sometimes competed for the limited resources, e.g. employment opportunities and additional water pipeline layouts. By involving the various stakeholders in the decisions and approvals, most of these issues were resolved.

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| #6 | Lesson learned: Involvement of local stakeholders in the decision-making processes of a project buys goodwill and generates ownership which pays dividends for sustainability. |
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60. Finally, the Project has also placed considerable store in maintaining close links with other players, particularly in the international community through excellent communication at many levels – an informative

website which was frequently updated, publication of various technical reports through which progress and technical issues could be tracked by interested parties; a number of high quality and attractive booklets and brochures; and presentations to numerous international meetings. Initially, an A3 annual newsletter was published mainly for the Japanese public in 2005 and 2006, but this was seen to be inefficient and publicity of Project activities could reach a wider audience more cost-effectively with more frequent updates through the website. In Iraq, the National Coordinator released (almost) monthly progress reports about all Project activities and distributed these to all relevant Iraqi stakeholders.

The Project has worked closely with a large number of stakeholders throughout and the active engagement of local stakeholders has been vital to it fulfilling its intended aims, hence stakeholder participation is evaluated as **Highly Satisfactory**.

IMPLEMENTATION APPROACH

Project Oversight

61. The Project did not establish a project steering committee, although one was discussed during the development of the Project concept. However, UNEP management deemed that there are sufficient built-in opportunities for coordination through consultative and review meetings with all the stakeholders. Instead, oversight was undertaken through both standard UNEP procedures (through the Director of the DTIE, and upwards to UNEP-HQ in Nairobi), and through the mechanisms under the ITF oversight and reporting mechanisms. Interviews indicate that extremely good channels of communication were open between the Project Coordinator and the Director of DTIE facilitated through the Director of the IETC, and that whenever help was requested, it was provided in full and in a very responsive manner. There was also constant communication with the Iraqi authorities via the National Coordinator; and regular meetings with the donors.

Project Management

62. The Project's implementation has closely followed the logframes of the various phases throughout. Management and coordination of the entire Project has been complicated by the fact that the security situation in Iraq meant that UNEP staff could not enter the country. The IETC therefore appointed a full-time **Project Coordinator** to coordinate all aspects of the Project. This post was held throughout all phases of the Project by Dr. Chizuru Aoki, a Senior Programme Officer with the IETC. Within Iraq, a Project Implementation Unit (PIU) was established within the responsible line Ministry, the MoE, to provide technical support, facilitate liaison with national and governorate institutions, and help oversee the project at the local level. The PIU was led by a **National Coordinator** who was contracted to facilitate in-country project activities and to assist with local and international coordination. This position was held throughout by Dr. Ali Abdul-Zhra Zebon Al-Lami, a senior official with the Ministry of Environment. To enable full-time engagement with the Project, he separated from the Ministry, and was provided with the necessary guidelines and training, including security training, to enable him to operate safely. Because of security concerns, he operated initially out of a home office, which was common practice in other international projects, but maintained regular contact with ministry personnel assigned to the project. The National Coordinator maintained constant dialogue with ministries, local community groups and contractors inside Iraq to share information on the Project, to solicit dialogue with partners to facilitate implementation, and to monitor progress. Whenever the security situation allowed, he also travelled to the southern governorates to meet and follow up on activities with local partners. The TET finds that two of the key factors in the admirable delivery of this Project have been a) the high quality and dedication of these two individuals, and b) the continuity of their involvement which has engendered trust and facilitated smooth operation – an important aspect considering UNEP's inability to see the Project activities on the ground.

Adaptive Management

63. In many ways, this is the pinnacle of the Project's achievements. The simple feat of delivering all the various aspects of all the components successfully (see paragraphs 33-34) under the immensely difficult circumstances, and with only minor delays, is laudable. Although designed in, and for, a post-conflict context, the deteriorating security situation meant that most of the Project was actually implemented during, and not after, a major conflict. In working day-in and day-out in a situation where one fears for one's life, see colleagues killed, work with disrupted power, communications and transport, yet still delivering a major project successfully demands the highest respect and the TET here recognises the outstanding contribution

and dedication of the National Coordinator. Similarly, coordination of a project from half the world away, where one can never see at first-hand the on-the-ground conditions, requires considerable management skills which again the TET recognises. In such testing circumstances, the ability to adapt management to fit to rapidly changing contexts is a necessity and this Project team exhibited it in spades, and the excellent lines of communication between the team members and the Project Coordinator and the Directors of the IETC and the DTIE were a major contributory factor. A far-from-exhaustive set of examples of the adaptive management needed includes:

- The tragic death of several key counterpart high-level officials within the MoMPW in terrorist attacks inside the Ministry premises in early 2007, and the resignation of others because of security concerns caused severe disruption and UNEP operations were put on hold. The Project had to establish trust and close working relationships with new personnel appointed by the Ministry and bring them up to speed with issues as quickly as possible.
- Some project activities had to be modified and adapted in design and delivery to address security concerns and minimise time and effort inside Iraq, e.g. the water treatment equipment was delivered in prefabricated modular containers that were then installed in the field thereby minimising the need for security provisions.
- All meetings and training that required the participation of international staff had to take place outside of Iraq. In 2005 and 2006, even road travel between Baghdad and Amman to participate in training and meetings became unacceptably dangerous leaving air travel the only remaining option but at a substantially increased cost. This was mitigated by organising meetings in lower-cost locations wherever feasible, shortening elapsed time of training by working more hours each day and condensing lectures, schedules and meetings; and, in some cases even by reducing the number of trainers and participants.
- Field activities incurred delays due to security problems. Work hours were often shortened to enable safer movement of personnel. Border closings, curfews and other restrictions also impeded customs clearance and the movement of equipment into Iraq, and impacted personnel movements for the duration of their installation. Installation and commissioning of some equipment took a disproportionate amount of time due to the difficulty experienced by some suppliers in gaining access to ministry premises. Management had to adapt and revise schedules as a result.
- The original site selected for the sanitation pilot project at Al-Hadam had to be moved because of security concerns and because of cultural and equity issues. A new site had to be found at Al Chibayish and design re-started.
- The difficult environmental conditions for computers (unpredictability and shortage of power, possibility of bomb damage, dusty conditions, low levels of maintenance) meant the design of the MIN had to be robust. Swarm replication was introduced amongst the servers so that at any time as long as one was working, the others would automatically replicate from it. However the software from Microsoft was not designed to be interrupted, so the Project had to re-design it to accept some level of interruption and continue without re-starting from the beginning.
- Rapid turnover of technical staff within the MoE meant the people dealing with the MIN were not always competent. Therefore, the Project used the NGO Nature Iraq to undertake much of the work, but this in turn led to problems when transferring the MIN back to the MoE because yet more new people did not understand that it was for the Ministry's use and hence would not cooperate fully.
- Simple logistics became problematic, e.g. one cannot purchase air tickets for flights out of Iraq from Japan so other offices had to become involved. The goal of the administrative and substantive offices are frequently different resulting in frequent clashes between UN requirements and the reality on the ground, e.g. the UN requires five quotes for an Arabic editor of a report, but it proved impossible to find five quotes. Special dispensations were needed from Paris or even from the Executive Director of UNEP which inevitably led to lots of unnecessary delays.

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| #4 | Lesson learned: Sound application of adaptive management can achieve results in spite of considerable challenges. |
|-----------|--|

Technical Management

64. The technical management of the Project has been very good and the DTIE and IETC deployed their top experts to work on various aspects of the technical implementation of the Project. The selection process has been rigorous with objective sets of criteria for selecting locations to ensure local ownership and security (see paragraph 106), for selecting the types of EST to demonstrate, and for exploring the potential impacts of each. The selection process of each type of EST (e.g. water supply or wastewater treatment) involved defining a set of design requirements (e.g. provision of 50 L/day with a long-term supply target of 160 L/day) while also examining environmental constraints (e.g. salt concentrations of source water). Selection was then made between pairs of possible design solutions, e.g. thermal distillation system or reverses osmosis across a membrane; conventional sewage treatment or constructed wetlands; centralised versus decentralised treatment plants. As part of this selection, an environmental impact assessment (EIA) was undertaken of each of the options looking at criteria such as nature, extent, and risk of impact as well as mitigation, and the residual impacts given a score based on qualitative descriptions from -2 (very significant negative impact) to +2 (very significant positive impact). The TET's only criticism is that, unfortunately, the assessors then made a common error of adding the scores for each option across the various environmental aspects, e.g. soil, water, air, noise, etc. to provide a single comparative score on which to judge overall environmental impact and make a final selection, something one would have expected UNEP's technical review to have corrected. This addition of qualitatively-based scored data (known as ordinal scale data, i.e. measurements or values that have imprecise differences between consecutive values but a meaningful order to those values) cannot be the basis for any type of mathematical function, even a basic one such as addition, since such functions are valid only using ratio scale data (i.e. where both a zero value and distances between different measurements are defined). The action undertaken is the equivalent of adding apples and oranges! It also assumes equal weighting to the various environmental aspects, e.g. that a -1 score for noise is equal to a -1 score for ecosystems, something that is unlikely to be true. Nonetheless, the errors are unlikely to have had serious repercussions for the selection process.

65. A post-construction assessment of each EST was also undertaken to generate data to facilitate wider implementation of the pilot. A technique which became known as the Sustainability of Technologies methodology was employed which comprised three tiers, thus:

- Tier 1: compliance screening with yes/no questions for local and national environmental laws, MEAs, and objectives;
- Tier 2: scoping based on qualitative and quantitative data to rank criteria for different technologies for technical suitability, environment, health and safety risks, resource use and emissions, economic/financial analysis and social cultural aspects; and
- Tier 3: detailed assessment encompassing qualitative and quantitative indicators to rank criteria for environmental aspects including resource use and emissions, economic and financial aspects, and economic viability.

In addition, a number of EST parameters were monitored during the construction and operation of the facilities. These parameters included the materials used for construction, the employment opportunities generated, the amounts of fuel and chemicals used the amount of water produced, the beneficiary population, and the resultant emissions⁴¹.

66. The technical solution for the water provision also took account of a number of other constraints. The units were pre-packaged in containers to make transportation and commissioning as simple as possible, and to ensure that operation was similarly simple. The modular design also allows the units to be expanded should the capacity subsequently need to be increased as a result of growth in the local population. The design of the Marshland Information System also acknowledged social and environmental constraints and went to considerable lengths to find design solutions. In particular, the shortage of electrical power and the unpredictable nature of its availability meant that back-up generators were critical and the system was established with "swarm replication" (see paragraph 63). The limited capacity of Iraqi computer operators meant that care was taken over its ease of use, i.e. to ensure it was not scary for ordinary people to access data. In all cases, the technical reports, manuals, and training course materials produced appear to have been of a very high standard, and were peer-reviewed.

⁴¹ As a small aside, the TET has not been able to find any mention of the disposal of the brine resulting from the RO units.

67. Given that such technical rigour existed in the Project, it may seem churlish to criticise, but the TET agrees with the concern expressed during one interview, that too few options were considered for demonstration and that although the Iraqis were heavily involved in selecting the sites for the demonstrations, they seem less involved (perhaps absent from?) the selection of the technologies themselves. It feels like a rather top-down approach (“we, the experts, think that these ESTs are right for you”) that lacks a process for allowing the Iraqis to choose what they want, and while given the circumstances that the Project was working in (a rapid post-conflict response in an insecure environment) this would be fully understandable, the TET wonders if it maybe a causative factor in the low sustainability observed, particularly in the case of the phytotechnology aspects.

The Project has been implemented in a thoroughly professional and skilful manner which has delivered all the intended outputs in spite of the exceptionally difficult conditions and ensuing constraints operative during the implementation period, hence the implementation approach has been evaluated as **Highly Satisfactory**.

UNEP supervision and backstopping

68. There is ample indication from interviews and reports that supervision of the Project within UNEP was adequate. Significant managerial input and oversight was received from the Division Director and Deputy Director throughout its duration, and lines of communication right the way up to the Executive Director of UNEP himself were described as open and responsive. Emphasis throughout was on achieving results, i.e. the intended outputs, but because of the shortcomings of the logframes (see paragraph 16), this did not involve making use of the indicators. Backstopping was adequate until November 2008 when there was no Administration Officer in Osaka. At this point, backstopping was provided by the Paris office but from June 2009 this facility disappeared and such work, now less than at the height of the Project, was split between the Programme and Administrative Clerks, or where particular skills were necessary, e.g. the certification of legal materials, was undertaken by the Administrative Department in Paris.

69. There is also ample evidence that the various parts of UNEP acted together as one, coordinated through the UNEP Iraq Working Group. The UNEP Regional Office for West Asia (ROWA) was closely associated with the Project, particularly in coordinating with the Iraqi government institutions and providing help and guidance to organise specific activities in the region. The UNEP Post-Conflict and Disaster Management Branch (PCDMB) undertook the design and coordination of the IMOS in collaboration with the Global Resource Information Database (GRID)-Europe of the UNEP Division for Early Warning and Assessment. The PCDMB was also responsible for the training relating to the IMOS and MIN, and represented UNEP at the UN Country Team in Amman, Jordan until 2006.

UNEP appear to have provided the necessary level of backstopping and supervision, and in the light of no reported problems, UNEP’s supervision and backstopping role has therefore been evaluated as **Highly Satisfactory**.

FINANCIAL ASSESSMENT

70. Financing contributions were from the Governments of Japan and Italy, according to Table 9.

TABLE 9 : FINANCIAL CONTRIBUTIONS TO THE PROJECT

| | Govt. of Japan | % of grand total | Govt. of Italy | % of grand total |
|--------------------|-----------------------|-------------------------|-----------------------|-------------------------|
| Phase I | \$ 11,000,000 | 79.5% | | |
| Phase II-A | | | \$ 947,234 | 6.8% |
| Phase II-B | \$ 1,000,000 | 7.2% | | |
| Phase III | \$ 900,000 | 6.5% | | |
| Total | \$ 12,900,000 | 93.2% | \$ 947,234 | 06.8% |
| Grand total | \$ 13,844,234 | | | |

There were no co-financing contributions.

71. The TET requested financial information from the Project to analyse progress and costs against budgets for each of the 11 components in the logframes. Despite considerable amounts of work, this proved

impossible because all of the project accounting was input- rather than output-based. Although attempts were made to allocate figures from budget lines such as staff costs, travel, etc. to the components in the logframes, the issue was further complicated by the fact that the Project had used the five components from Phase I throughout all the other phases of the Project as a convenient management framework. The TET would like to place on record its thanks to Ms. Aya Mimura for her considerable time and effort in trying to achieve this end.

72. As far as the TET can assess, the financial controls appear to have been good. The simplicity of the Project's design has meant that financial planning and reporting has not been overly taxing, but the reporting to the ITF was very stringent, with a great deal of vigilance placed upon programming. All major budget revisions, project extensions, and approval for changes in the Project's contents required consultations through the ITF's mechanism. Such requests would then be reviewed by the ITF Steering Committee, and ultimate approval was provided by the Trust Fund Executive Coordinator. This was in addition to the reporting requirements described in paragraph 77. The ITF structure was current throughout all phases of the Project. The TET has seen several detailed financial statements which have been approved by the budget and Financial Management Service of the UN Office in Nairobi. The simplicity of the budgets in the Project Documents, and the fact that they are (as appears standard) input- rather than output- based, raises questions about the mechanics of how project management kept track of progress in the various components, but nonetheless it was successful. It is reported to the TET that UNOPS proved more flexible and responsive than UNEP in management considerations, but that this came at the cost of poor financial reporting, and such reports frequently had to be re-done. In fact delays in UNOPS final accounting led to the final accounts for Phase I being delayed, and approval for closure of the Project was approved retrospectively on 26th February 2008 for actual closure on 31st December 2007. No audit has been undertaken.

Financial planning and management appear to have been effective throughout. Accounting has been thorough and reporting rigorous, hence financial planning has been evaluated as **Highly Satisfactory**.

Cost-effectiveness

73. The UNEP Evaluation Office's criteria of "*efficiency*" really applies solely to cost-effectiveness (see TOR in Annex I) hence the rather ambiguous term "efficiency", which could apply to efficiency in terms of time, energy-use, or even carbon footprint, has been replaced in this evaluation with the more precise term "cost-effectiveness".

74. Cost-effectiveness is complicated in this Project by context. A simple look at the figures would suggest that in many cases the Project appears to have been expensive in achieving many of its aims, but this does not take into account the all-pervasive effects of the acute security situation. One of the clearest examples to illustrate this is the impact on travel. Since international staff were not able to visit Iraq, all meetings and training that required the participation of international staff had to take place outside of Iraq. While this was initially undertaken by road from Baghdad to Amman (and thence onward as necessary), as the security situation worsened such road travel became impossible and the only remaining travel option was by air. This increased the costs of meetings and training significantly, it in turn being further inflated by a monopoly airline. The TET is satisfied that the Project took all opportunities to ensure cost-effectiveness. Three examples will suffice:

- The pilot EST water treatment equipment was designed in prefabricated modular containers to minimise delivery costs and difficulties. The simplification of on-site engineering (concrete pads for placement) and commissioning also removed the need (and cost) for elaborate security precautions and shelter/accommodation requirements.
- The inflated travel costs referred to above were offset as far as possible by increasing the efficiency of the work schedules (shorter meetings and lectures, longer working days), reducing the costs of meetings through careful choice of venue, and in some cases by reducing the number of trainers and participants.
- The Project used personnel trained by it through either primary or secondary training to implement various parts of the components wherever this was possible. Although no other option was effectively available to it, nonetheless this reduced costs over a conventional approach of importing foreign expertise to do it, as well as having the additional benefits of reinforcing the training and building capacity through hands-on experience, and of increasing a sense of ownership.

Overall, the efficiency (cost-effectiveness) of the Project has been as good as the security situation has allowed, and its management has taken innovative approaches to control costs, hence it is evaluated as Highly Satisfactory.

MONITORING AND EVALUATION

Despite no formal M&E Plan having been developed, and only limited funds being allocated, progress monitoring through reporting and internal activity monitoring through excellent communication channels has been exceedingly good, hence the overall rating for monitoring and evaluation has been evaluated as Satisfactory.

M&E Design

75. The design of Phase I did not contain any monitoring and evaluation (M&E) plan nor any budget allocation for M&E, nor did it make any overt reference to M&E in any part of the text, save:

“UNEP has an established financial and legal monitoring system for projects to measure and assure compliance with agreed norms within the UN system”,

and references in Annex B to unspecified monitoring and performance evaluations by under local and international contracts. The Phase II-A, II-B, and III Project Documents all make reference to M&E indicating that:

“routine monitoring will be carried out on a weekly basis, where project personnel submit summaries of activities conducted and progress, ... Activity reports, progress reports, final reports, and financial reports will be submitted as required ... fulfilling the specific terms and conditions indicated in Annex V of the UNEP Project Manual. Furthermore, indicators of the results of the project will be monitored ...”

but Annex V provides only standard paragraphs for insertion into project documents and therefore can provide only a prescription for the design of the M&E component in a project and a statement of intent. It is no substitute for an actual plan, which is absent from all four phases. None of the indicators in any of the four Project Documents are SMART⁴² but, as noted in paragraph 16, they are also not really results oriented, being too vague and general, which renders them effectively unusable. The TE therefore has to assess the Project as not meeting the minimum requirements for M&E design outlined in Annex 4 of the TE's ToR (see Annex I). Notwithstanding these observations, the TET does note, however, that the design of Phases I, II-A and II-B was undertaken prior to the UN generally improving its M&E, e.g. the GEF introduced its improved M&E policy in 2006.

No M&E plan was ever put in place for any phase of the Project, and small budgets were allocated only to Phases II-B and III. Therefore, monitoring and evaluation design has been evaluated as Unsatisfactory.

M&E Implementation

76. Monitoring and evaluation of Project activities have been undertaken in varying detail at three levels:

- i. Progress monitoring
- ii. Internal activity monitoring
- iii. Impact monitoring

77. Progress monitoring has been comprehensive and undertaken to a very high standard through a variety of means. Detailed bi-annual reports were provided to the ITF which included purpose, human resources, operational details, results, and expectations for future work. These reports were clear, concise, and well-written. Progressive financial reporting was undertaken separately to the ITF providing levels of commitments and disbursements. It was done on a single-page agency basis and so was coordinated with the *Strengthening Environmental Governance Project* being implemented through UNEP's Post-conflict Assistance Unit⁴³, and with the *Hazardous Waste Chemicals Collection and Storage Project* in 2006. Financial reporting to the ITF was very stringent, with a great deal of vigilance placed upon programming,

⁴² Specific; Measurable; Achievable and attributable; Relevant and realistic; Time-bound, timely, trackable and targeted.

⁴³ Now called the Post-conflict and Disaster Management Branch.

not least because the oil-for-food scandal was still fresh in the memory and there was a very large amount of money in the ITF. Weekly or bi-monthly reports on the Project's status were also made to the donor (the Japanese Government⁴⁴), the Director of the IETC and to the Director of DTIE. These were single-page memoranda with the key progress activities, events and communications bullet pointed. Regular inter-divisional telephone conferences (IETC, PCAU, ROWA) were also held every couple of weeks in the early stages, becoming a little less frequent as time went on. The minutes from these were circulated generally. Because of the short duration of each of the Project's phases, no Mid-term Evaluations have been deemed necessary, but comprehensive and high quality Completion Reports have been submitted to the donors for each phase, and one covering the entire Project has been published by UNEP complete with Forewords by the UNEP Executive Director and the Iraqi Minister of Environment. Evaluation meetings were conducted at the end of each phase.

78. Internal activity monitoring has also been good, if for no other reason than the remoteness of the Project's coordination team from Iraq meant that it had to be in order to bring the Project to a successful conclusion. Activities included:

- almost daily telephone or e-mail contact between the Project Coordinator and the National Coordinator;
- regular face-to-face meetings between the National Coordinator and the Japan-based team, either through visits made by the NC to Japan or where possible on the back of training courses or consultative meetings, e.g. in Amman. The PC also made seven missions to Amman to meet with the NC or with the Iraqi delegation, and other Project staff-officers tried to meet with the NC whenever possible and provided feedback to the PC if she was not present. All mission reports were filed. This maximised the effectiveness of such meetings within budget and other constraints;
- regular progress meetings (at least bi-monthly) between all technical and administrative staff in Japan to discuss progress, problems and facilitate technical exchange; and
- multiple daily contact between the Project Coordinator and the Director of IETC which facilitated open channels for rapid decisions with the Director of DTIE (particularly where political resolution was required) which cut bureaucracy (e.g. no routing slips) making feedback and decisions easy and direct; and
- at least weekly (often daily) telephone or e-mail exchange between the Project Coordinator and UNOPS to discuss finance, logistics, and contracting.

All external procurement contracts contained reporting requirements through memoranda of understanding, and all had identified milestones. Payment was sometimes paid on completion of activities or a task after receipt of a certificate of completion; but sometimes a preparatory payment was made up-front, e.g. for training workshops, with the balance paid on completion.

79. Although the difficulties encountered have been profound (see paragraph 63), the coordination and feedback of the Project appears to have been excellent throughout. Significant attention has been paid to reporting on output indicators which apparently have been discussed frequently in meetings and progress reports, and donors were provided with dossiers containing updates on indicators at evaluation meetings. However, it remains unclear as to the extent the logframes' indicators have played in the considerable adaptive management that the Project has practiced, not least because their shortcomings would not really facilitate their use in this way under ordinary circumstances. However, in the current Project, the adaptive management has been influenced much more by, and responded to, the significant difficulties posed by the security situation in Iraq with its concomitant challenges for communication and logistics.

80. Impact monitoring has been attempted but in some most cases appears to lack sharpness. Questionnaires were provided to all 306 participants attending the 13 training courses carried out outside of Iraq. Unfortunately, these tended to concentrate on the satisfaction levels towards the courses themselves rather than, say, examining the predicted impact that they may have on the working lives of the participants. Questions tended to be along the lines of "To what extent were the objectives of the course met?" or "Did the course meet your expectations?", or "How do you judge the needs and practices of your country?", rather than, for example, "To what extent do you feel the course has equipped you with the skills necessary for your

⁴⁴ But not to the Italian Government for Phase II-A

work concerning the Iraq marshes?”, or “How often do you think you will use this training?”, or “To what extent do you now feel able to train your colleagues in Iraq?”. Similarly, a “Final Report” for Phase I was commissioned from an independent external evaluator who reported in September 2006 on the implementation of the drinking water stations. The report provides detailed photographic evidence confirming installation of the six plants, and makes a number of interesting statements about the Project, but although the

“Field evaluation team visited the communities and through a questionnaire survey collected basic information of the beneficiaries’ views and feelings on the outcome and impact of the project”,

the quantitative results of these are never presented and hence complimentary statements such as

“the overall response of the inhabitants was one of great satisfaction”

and

“our interaction with the beneficiaries indicates an increased confidence and desire on reviving life within the marshlands’ ecosystem”

and

“the water treatment plants have encouraged many households to return to their village ...”

are left unsubstantiated by any quantitative data which must have been collected. Only in one case is any quantitative evidence presented, i.e.

“the field evaluation team observed a noticeable increase in the number of inhabitants since the last visit (May 2006), especially in the Al-Masahab location where approximately 100 families have returned from a total of about 1,000 families which migrated ...”

and yet this is at odds with the official view of the Basra Drinking Water Authority which declines to maintain the Al-Masahab facility on the grounds of the population being too few to warrant it. Similarly, an external evaluation report was published in November 2007 for the sanitation and wetland restoration aspects of the Project. Again, full photographic evidence confirming activities at the sites was included and a great deal of quantitative data summarising the water quality results is presented; yet examination of the impacts is again weak and unsubstantiated, e.g. findings such as:

“Improved sanitation has reduced the health problems identified by the director of the nearest health centre, by reducing water-related diseases”

and

“It [the sanitation component] has a positive impact on agriculture since the area produces less contaminated and polluted water. During ... field evaluation, new agriculture areas under development as a result of this pilot project were observed.”

and

“Growth of native species has been observed in the restored [wetland] area. According to CRIM specialists, this pilot project is expected to increase wetland restoration of large areas.”

are prevalent. The former should have some quantitative estimates attached, although the TET wonders if the director of the health centre kept records before and after implementation of the sanitation project, and if not, how is it known that such problems have reduced; the second cannot in any way be justified that the new areas were as a result of this pilot project; and since the planted phytotechnological experimental area was about increasing water quality and not water volume, the third statement has no validity at all.

M&E implementation has been mixed, with excellent progress monitoring and very good internal activity monitoring, but poorer impact monitoring, hence the implementation of monitoring and evaluation has been evaluated as Satisfactory.

Budgeting and Funding for M&E

81. No specific budget for M&E was included in the Phase I Project Document. However, the ITF ToR and rules of procedure as of 2004 indicated that monitoring and reporting costs should be included in the

agency management support cost, which was 6% of the total budget. In keeping with this rule, the UN Office in Nairobi and UNEP agreed in writing in 2004 that the Project should be evaluated using part of the agency management support cost, and subsequently, US\$20,000 was secured to contribute towards the terminal evaluation, in line with this agreement. The Project Documents for Phase II-A show budgets of US\$ 15,000; for Phase II-B of US\$ 5,000; and for Phase III of US\$ 10,000. The TET understands that the Evaluation Office and DTIE agreed to have one terminal evaluation to cover all project phases, and that the pooled resources from all phases amounted to \$50,000, although this amount did not appear to be available to the TE – see paragraph 7. The TET also notes that the Project has carried out significant M&E activities throughout its lifetime, which include a number of independent external evaluations, of which this TE is one.

Allocated budgets for M&E appear to have enabled significant levels of M&E to take place, hence budgeting and funding for monitoring and evaluation has been evaluated as **Satisfactory**.

STRATEGIC ISSUES

82. As can be seen from the foregoing part of the evaluation, the TET believes that this is generally a good project that has been well implemented in the face of considerable challenges. The aim of this section is to concentrate on those key and often difficult cross-cutting issues. It is important that the reader keeps in mind that this section is not intended to show this Project in a poor light, rather to examine pertinent issues.

RELEVANCE

83. Overall, the Project appears to have been generally relevant to some of the problems faced in restoring the Iraqi Marshlands, and it undoubtedly responded to a number of priorities voiced by the UN post-conflict assessments and by the Iraqi authorities in 2003. However, the single over-riding issue for marshland restoration is the availability of sufficient water and it may be pertinent to ask why support in tackling this issue was not a priority? The TET recognises that the scale of the Project limited it to providing support for restoration rather than undertaking restoration *per se*, yet significant support could have been provided through the UN brokering negotiations with upstream countries (Syria and Turkey) to provide increased release of water at peak flood times to both provide the volume of water necessary to re-flood large areas of the marshes, and to flush the salt from the system, and perhaps in providing advice about blocking major drainage channels such as the Glory River and diverting that water back into the marshlands⁴⁵. In the years immediately after the collapse of the old regime, there was a window of opportunity when this could possibly have been achieved under the multilateral auspices of the general international response to assist Iraq, for example, Turkey and Syria could have been persuaded that a water-sharing treaty could have been their contribution. That window of opportunity now appears closed and negotiations will now have to be on a bilateral basis between the Iraqi Government and those of Turkey and Syria, and likely more difficult as a result. Whatever achievements this Project has made pale into insignificance when compared to those that could have been achieved by obtaining such an agreed treaty over water release. Moreover, the vulnerability of the Project's outcomes to this issue is already visible in the light of the impacts from the drought. The TET implies no criticism of the Project in these comments; it may be that such an approach could not be made by UNEP (or even another UN agency) for political reasons or for organisational reasons – the TET is aware that the Project was developed under a UN arrangement in which participating agencies were defined separate roles under the thematic cluster to avoid overlap, and in this case, under the “Agriculture, Water Resources and Environment” cluster, FAO was the major agency for irrigational water issues and UNESCO handled the hydrological aspects and the transboundary water issues through their programme - or that donor funding for such an approach could not be found, or that the Iraqi Government itself did not recognise the need and therefore failed to prioritise it at that time. However, it is clearly recognised by the Iraqi Government now, as a letter dated 3rd November 2009 from the Permanent Mission of the Republic of Iraq to the United Nations sent to the Office of the Secretary-General of the UN makes clear in informing it about,

“the crisis of Iraqi water resources and its impact on all activities of civilian life in Iraq, in particular the Iraqi marshlands.”;

pointing out that

⁴⁵ Please see Annex VII for comments

“for two years ... Iraq has suffered harsh water-shortage conditions, bringing catastrophic drought to numerous areas of the country that was severest in the marsh region. Thus five years of efforts to revitalize the marshes went for naught, the region’s environmental system was shattered and its people are fleeing once again.”

and requesting the help of the UN to get other Contracting Parties of the Ramsar Convention to share water resources under the said convention. While DTIE believe that the UN system is not in a position to broker transboundary water negotiation among riparian countries unless all parties want the UN or other third parties to intervene, citing Turkey’s rejection to ratify the 1997 UN Convention on International Water Courses for Non-navigational Use (one of the legal instruments to settle the international water dispute) as an example, Turkey has ratified the Ramsar Convention in 1994, Syria in 1998, and Iraq in 2008, so this may prove to be a more fertile approach. UNEP’s Division of Environmental Law and Conventions could potentially play a facilitatory role, as may the UNEP-UNESCO project which is addressing the importance of international cooperation with neighbours through the World Heritage scheme.

Recommendation: The TET recommends that UNEP, perhaps through the Division of Environmental Law and Conventions, should contact the Office of the Secretary-General of the UN to see if it could provide facilitation services in response to the Government of Iraq’s letter requesting the help of the UN to get other Contracting Parties of the Ramsar Convention to share water resources under the said convention.

84. Notwithstanding the above, at a different level the Project responded well to UNEP’s programmatic framework as provided by the relevant Governing Council decisions outlined in paragraph 20, while one of its outcomes, the provision of drinking water, clearly responds directly to the achievement of Millennium Development Goal 7. However, a more detailed examination of the relevance of various aspects of the Project is valid.

Data and Information Management

85. In many ways, the establishment of the Marshlands Information Network, and the strengthening of the Iraqi Marshlands Observation System, are the single most relevant component when taken in the broadest context. The need to base decision-making and planning on sound scientific evidence is incontrovertible and sharing of such information facilitates good coordination amongst the various marshland restoration efforts. The design of the systems addresses a number of important issues such as the need for the information to be in Arabic; the importance of building the system on a tried and tested platform (ESTIS). In particular, the designers are to be applauded for their recognition of significant constraints such as insecure power supplies, dusty working conditions, and their response in providing stand-alone servers using automated replication through a system of “swarm replication⁴⁶” enabling the system to be capable of supporting a great deal of system failure, e.g. bombings, power cuts, with an inherent capability to revive itself.

86. On the other hand, the relevance of the two big surveys may be seen as being questionable in that although the data arising from the demographic and socio-economic survey and the waste management surveys provided important data for the first time, the TET has learned that little if any use has been made of them by the Iraqis (although a draft White Paper by UNAMI references the findings) and that interviews with the Ministries indicated that there are no plans by them to repeat them in the future. However, the UNEP-UNESCO “*Natural Cultural Management of the Iraqi Marshlands as World Heritage*” project includes plans to upgrade the socio-economic work (as indicated by its Year 2 workplan) and this has apparently been agreed with representatives from the ministries and local governorates. It may be that some more input to raise the stakeholders’ understanding of the data’s significance and application could have been made, but perhaps the true value of such surveys is that they provide an important baseline against which future work will provide insights. With this in mind, it is claimed that the UNEP-UNESCO project may review and update the demographic and socio-economic survey which may shed light on changes effected by the drought.

⁴⁶ The system has the database copied onto all servers. Any operation on one server will be replicated on any other, so that as long as one of them continues to work, all of the others can fail and the system will revive itself once those servers come back online, provided that this does not exceed a three-week period.

Capacity Building

87. The capacity building and training aspects of the Project have also been very relevant. The TET congratulates the Project on its approach in organising targeted training activities to complement and link them to the substantive interventions in the areas of policy, data management, or pilot projects. By so doing it responded positively to Iraqi partners' concerns that many meetings and training programmes organised by international organisations resulted in little visible change inside Iraq, and that few opportunities were created to put the newly-gained knowledge to work. The Project actively encouraged the trained personnel to develop their new skills through taking part in, or analysing, the various tasks undertaken by the Project, and while this may have been in part forced upon the Project by the inability of foreigners to enter the country, the end result has been extremely positive and should be encouraged elsewhere. The Project made continual adjustments to the capacity-building initiatives throughout the project period in response to findings from the participants' evaluations. These included incorporating a large proportion of case studies and hands-on exercises rather than direct lectures, and longer courses. Efforts were also made to enhance gender balance and a 25% female participation was achieved. The training of trainers concept also appears to have worked well with a number of secondary courses carried out in-country. While the TET has not been able to verify the impact of the training, it is still clear that many (and probably the majority) of those trained are still in post or using the skills learned, and that components such as the water stations, the MIN, and the water monitoring schemes are still functioning, something that would not have been possible without the training.

#5

Lesson learned: Capacity building through hands-on application of skills acquired through training should be encouraged by projects wherever possible.

Pilot Drinking Water Projects

88. The provision of safe drinking water has also been one of the main successes of the Project. The drinking water stations clearly responded to a priority need articulated on several occasions by the Iraqi authorities, and the request to widen the response through provision of another such station in Phase II-B demonstrates both the perceived success of Phase I and the continuing need. Furthermore, the local beneficiaries have expressed their appreciation to a number of independent evaluations including this one. Although an EST, the production of drinking water by reverse osmosis was a well-known technique in Iraq prior to the Project, and it appears to have been expanded significantly since (see paragraph 102) which attests further to its relevance.

89. Originally, the TET had some concerns as to whether such conventionally-powered plants should actually be categorised as an EST. The UN defines an EST as those:

“that have the potential for significantly improved environmental performance relative to other technologies. Broadly speaking, these technologies protect the environment, are less polluting, use resources in a sustainable manner, recycle more of their wastes and products, and handle all residual wastes in a more environmentally acceptable way than the technologies for which they are substitutes.”

yet the plants use a large amount of diesel fuel to power them, up to 4,900 litres/month at Al-Masahab (based on designed operation of 8 hours per day and 24 days per month⁴⁷ in comparison to the 1,220 litres/month at Badir Al-Rumaidh where a conventional station was refurbished. Not only does the diesel result in significant air pollution and production of CO₂, but its delivery at times in the past has been by overtly precarious means leading to a significant risk of water pollution (see Photo 16 in [Annex IV](#)). However, it appears that pollution is but one of the criteria for environmental soundness (as per the above definition) and conventional systems, as at Badir Al-Rumaidh, will not remove salt from water. As such, reverse osmosis is favoured over thermal distillation. A second question then arises from this which is, in view of Phase III installing photovoltaic cells to power the plant at Al-Ghreej, why were solar panels not used on all the plants from the outset? This would seem a much more environmentally sound and sustainable means of delivering the same benefits, and crucially much more relevant to a situation where both mains electricity and fuel delivery for generators are fraught with logistical problems because of the security situation. However, again there is a logical explanation. Apparently, given the salinity of the water, it is not feasible to rely solely on

⁴⁷ Actual operating periods are considerably lower than this because of fuel shortages – see Tables 7 and 8.

alternative sources of energy for desalination options. While solar power can be used to augment the conventional energy sources it is first necessary to verify the performance of the water treatment equipment within the compact modular reverse osmosis units using conventional power; and furthermore even where solar power works, back-up conventional power is likely to be required. The Project was clearly pushing the boundaries of what is feasible in engineering terms. Even today there are few installations in the world combining solar power and reverse osmosis. Most of these, as here, have been pilot demonstrations with associated high costs, especially for the photovoltaic panels, and while these have now reduced, making such a combination more economically viable, the utopian idea of relying on solar power to provide consistent water supply from brackish water is still not quite possible.

90. The solar stills pilot is hugely relevant to the marshlands. It uses sunlight to distil clean drinking water from non-potable marsh water in a domestic setting, in a location where sunshine is rarely in short supply. The individual nature of the units also gives each household control over their own supply of water, something the RO stations do not accomplish. The stills are self-contained, require no additional infrastructure, and would appear to be relatively cheap and therefore cost-effective. Their introduction to a handful of households in the three governorates would appear to be an ideal example of EST deployment. And yet, they appear not to have been a success, although the TET (and no-one else either as far as can be ascertained) knows why. It could be argued that the deployment of only nine such units means that they could be susceptible to localised problems and that a wider deployment may have provided some more statistically valid results, but in fact given that only one unit seems to have been a success and at best two others partially so, perhaps small-scale deployment to test the waters (no pun intended) was the relevant approach. What is clear is that the results for the apparent failure should be investigated by the appropriate authorities as soon as possible, because the technology, at least on paper, looks to be an excellent solution to a pressing problem.

Sanitation

91. The use of phytotechnology for improving the quality of water was already well-known in Iraq, yet its use had not been successfully employed for the treatment of sewage⁴⁸. The Project set about providing a demonstration, and successfully trained a number of people in its use, but there appears to have been no attempt to look at why it had not already been adopted for wide-scale use. Clearly there is some reticence on the part of householders to have such a facility located close to their properties, one of the reasons the pilot project had to be moved from Al-Hadam to Al Chibayish, but there may be others. There are also practical issues to the technique being scaled up or replicated widely, and the TET believes these reduce its relevance. Firstly, it requires individual water supply to each house to transport the waste to the sanitation treatment bed. This involves significant investment in a relatively poor environment (whether it be government or villagers paying for it). A GEF project in Macedonia introduced this technique into a village as a demonstration to reduce the amount of organic pollutants entering Lake Prespa, and the villagers were so impressed that they paid for the water infrastructure themselves. It would seem unlikely that the villagers of the Marshlands could do the same. Second, when the marshes are fully re-flooded, some of the households occupy small island plots (see photo on front cover) making location of individual systems difficult and making the transport of waste to a centralised unit almost impossible (at least without some serious infrastructure and probably pumps). At the other extreme, when the marshes are dry or for those communities located relatively far from water, the system cannot work because of the lack of water – as clearly demonstrated by the failure of the project in the drought – or at least not without extensive water engineering works. So the technique seems to be of use only under a narrow transitory band of environmental conditions – a sort of halfway house between drained marshes and fully re-flooded ones; and therefore its relevance is highly questionable. If it is of use as a short-term solution, is it really cost-effective? It would seem probably not and perhaps other techniques would have been more appropriate to explore, e.g. self-composting toilets⁴⁹.

Wetland restoration

92. Again, phytotechnology was employed here, but the relevance of the pilot site at Al-Jeweber where reeds were planted in a very small area of some 500m², and the larger site at Auda Marsh, where natural

⁴⁸ Please see Annex VII for comments

⁴⁹ Used to great effect in both arid and wetland locations in National Parks in Western Australia – odourless, low maintenance.

vegetation was used, appears to have got somewhat lost with events⁵⁰. While there may have been little natural marsh at the start of the Project, and water quality was and remains an issue, any wetland ecologist would be able to predict that re-flooding an area will lead to growth of common reeds *Phragmites australis* naturally in a very short space of time, and as such, these will begin to start to improve the water quality naturally. Why then go to the trouble of planting a small area with reeds as a demonstration? It is clear that the technique of using natural vegetation, especially common reed, to improve water quality is well-known and that the scientific community within Iraq was well aware of the process prior to the Project. It is also clear that while university staff understood the concept, government engineers appear to have been less *au fait* with such ideas and certainly had little if any experience of its application. The local people had no understanding – they just wanted fish. The two pilot sites were clearly mainly training and demonstration exercises to raise awareness of stakeholders and to explain the integrated nature of water quality and low-level biodiversity that in turn supports higher life forms, and management issues needed to be explained and integrated such as control of cattle to enable reed fringes to grow; protection of fish spawning areas; processes taking time before benefits can be realised. However, while these issues may be pertinent to the small-scale planted area, the TET believes them to have much less relevance to a large-scale experiment such as Auda Marsh and even less at the full restoration level where the natural processes that the experiments seek to mimic are already operating. Moreover, the TET believes that the micro-scale of the demonstration sites, the focus on monitoring water quality parameters, and computer modelling of results is at odds with the scale of the restoration taking place. Some 2,294 km² of the Marshlands has been successfully restored – much of it using water of low quality, most of it without using phytotechnology beyond the natural systems, and mostly without the need to monitor water quality, albeit this would be a desirable routine procedure. While this may mean that the health of the ecosystem has not yet been optimised, fish populations are recovering and record numbers of birds are being recorded⁵¹, both indicators of healthy ecosystems and more importantly from the Marsh Arabs' perspective, sources of food. The limiting factor for marshland restoration remains water quantity, not quality, and where sufficient water is available to flood an area, reed grows naturally and quickly as has clearly been the case in the Marshlands, even in those parts which have been dry for ten or more years – the reed seeds appearing to have remained viable in the soil. While monitoring may record the process, the scale of the marshland restoration is frankly too large for any meaningful micromanagement to have a significant effect. The main problem remains one of high salinity from the surface salts, but this can really only be properly solved by having sufficient quantity of water to flush them out of the system (as the annual spring floods used to do), not by phytotechnology.

93. This whole aspect of the Project raises a number of difficult issues. Did the Iraqis have a vision at the outset that they wanted to use phytotechnology to help restore the marshlands or to deal with sanitation issues? If so then their vision and aims should have been noted, and capacity-building integrated towards that vision. Similarly, a proper process should have been initiated where a variety of methods were tested, a selection of the most appropriate made, and policy changed to accommodate that choice followed by replication. None of this appears to have happened, and the abandonment of both the sanitation and wetland restoration components following the drought suggests that such a vision was never present. Certainly both components could have been replicated even at trial level in new areas to overcome the drought problem and continue experimenting, but the authorities show no interest in doing this or in introducing the technology in a scaled-up version. Perhaps they too are of the opinion that if they can provide sufficient water, Nature will do the rest. Given the evidence that suggests there is little interest in this technology in this context, the difficult question needs to be asked was this technology deployed simply because of one organisation's interest in it? All of the evidence above suggests that this is in fact the case. However, comments received to the draft of this report and additional information in the form of the *Final Technical Report of the Environmental Monitoring and Main Drain Wetland Pilot Project* suggest that the MoE has already recommended the application of phytotechnology for any releases of water from the Main Drain, although the point made in paragraph 8 of the Executive Summary of that report that:

“the results of the pilot activities may be useful to inform policy making and to find suitable Environmentally Sound Technology (EST) Options” [consultant's emphasis]

⁵⁰ Please see Annex VII for comments

⁵¹ http://www.unep-aewa.org/news/news_elements/2011/vulnerable_marbled_teal_iraq.htm and <http://www.birdlife.org/community/2011/01/miracle-in-the-marshes-of-iraq/>

is hardly a ringing endorsement of the Project's efforts and does not preclude the possibility that the recommendation

“If the Main Drain water needs to be released, the Iraqi Ministry of Environment recommends the application of phytotechnology as a suitable EST option and a periodic release of freshwater, with regular water quality monitoring”

is based upon other work done by, or known to, the Iraqi's, rather than just that undertaken by the Project. Certainly, DTIE's assertion, made in comments to the draft, that in the medium- to longer-term, environmental management programmes in the Marshlands are quite likely to adopt phytotechnology applications, remains at odds with the interviews held in Iraq.

The Project has provided the means to scientifically ground the planning and decision-making necessary to manage the Marshlands and has also responded well to the priority need to provide drinking water, but the sanitation and wetland restoration approaches appear not to have garnered favour and maybe somewhat inappropriate in the context, hence relevance is evaluated as **Satisfactory**.

SUSTAINABILITY

94. Evaluation of the sustainability of this Project is not straightforward because of the somewhat disparate nature of the components and the various factors affecting them. Nonetheless, single combined ratings have been applied using the rating criteria defined in Table 2.

Financial sustainability

95. The financial sustainability of the Project appears generally good. There has been significant country buy-in to the drinking water stations and an Agreement was signed by the Deputy Minister of the MoMPW in June 2007 transferring them to that Ministry's control. Specifically, the MoMPW undertook to ensure provision of fuel, operators, maintenance and spare parts, security, and monitoring and implicitly pay for these. Generally, this agreement appears to be being honoured and the stations have been operating, if on a reduced timescale of a few hours per day for only two or three days a week, rather than the eight hours per day, 24 day per month expectation. Nonetheless, the local people indicate that when operating, the period is sufficient for their needs. There have been some problems with maintenance since handover at various stations, and at the time of the TE some were not operating. Significant damage was reported at Badir Al-Rumaidh and photographs provided by the National Coordinator taken in March 2010 show much of the equipment missing. At other places, collateral damage has occurred to the distribution networks as a result of excavations and other public works, but these, and the station at Badir Al-Rumaidh, have been repaired at the time of the TE field visits in September 2010 indicating that adequate finance is still being provided. The biggest problem appears to be in Basra where the Drinking Water Authority seems unconvinced by the Project siting a unit at Al-Masahab. Official correspondence from the Basra Drinking Water Authority notes the low population of this site and its remoteness. The authority is not managing to maintain many of its stations including Al-Masahab, and appears to be looking to attract outside investment through partial or full privatisation of the stations and to then charge local people for their drinking water (as in urban areas). The local people are refusing to countenance that and an impasse appears to have developed. In the other cases, maintenance has been slow at times but does appear to eventually have been carried out. The Iraqi Government and Thi-Qar University also continued to fund the phytotechnology sites and the associated monitoring programmes while they were still extant, but these have not been revived or replaced since their abandonment in 2008 because of the drought. The MIN is also continuing to be funded and continues to operate, up to a point. Overall, there appear to be no real risks affecting this dimension of sustainability, except possibly in Basra, therefore financial sustainability is adjudged to be **Likely**.

#7

Lesson learned: Handing over pilot projects to the national authorities through an official Agreement promotes ownership and sustainability.

Socio-political sustainability

96. At one level, the socio-political sustainability of the Project is very strong, i.e. the Government is very strongly committed to the restoration of the Marshlands and there is a very strong desire among the Marsh Arabs to be able to return to the ancestral home and revive their traditional way of life, although the former is tempered by a continuing inability to view the overall picture of the future water scenario for the country,

although the new National Water Master Plan being developed by the Government in which UNEP is collaborating, does advocate the importance of the Marshes. The Project's strategy of developing and deepening its involvement from an original post-conflict intervention towards a longer-term view has also undoubtedly helped strengthen this aspect of sustainability. The provision of drinking water stations dovetails with this vision, and with the sole exception of the Basra Drinking Water Authority, that component has been met with heartfelt praise by all involved, particularly the beneficiaries. The commitment of the Government to continue this programme can be seen by the expansion in the number of RO units in the Marshlands to 169 (see paragraph 102). However, there are problems at the local level. The principles behind the deployment of the solar still are sound – small-scale, relatively cheap, simple to operate, robust units using only solar power. Yet their use by the beneficiaries failed almost completely for reasons that are still unknown and that may be technical, but clearly they have not gained acceptance or been valued as they should. Such social or possibly technical barriers should be investigated in an attempt to overcome them and use this technology widely. Similarly, provision of reed-bed technology for sanitation purposes was not welcomed by all; the site having to be moved from Al-Hadam when villagers rejected it being located close to their houses and, perhaps more importantly, because those whose houses would be served by the facility would also receive piped water to their houses while other would not. The capacity for seemingly small details to cause social conflict should not be overlooked. Also at the local level, the Project went to great efforts to raise awareness amongst women about general hygiene link health issues to the water quality of the marshes and sanitary practices. The TET has been unable to ascertain how effective this aspect has been, although some questionably independent data obtained from the questionnaires may suggest it was effective. Provision of kits, particularly plastic containers to collect and store drinking water is an obvious benefit, but the TET questions whether provision of soap, toothpaste and other sanitary products, even as an example of availability, is likely to be converted into sustainable behaviour given the general levels of poverty and the remoteness of many communities. Other priorities are likely to override even the need for even these basic consumer items. At a political level, there appear to be no interest in continuing with any of the phytotechnological components. This may be because they are seen as being vulnerable to drought or inapplicable in the scale of the marshland restoration works. Certainly there has been no attempt to move the experimental programmes and equipment to new sites unaffected by the drought or, more importantly, to attempt to replicate them or scale them up to an effective functioning level. Given that there appears to be no interest in this aspect, but very strong political support for other aspects, it would seem inappropriate to downgrade the assessment of socio-political sustainability of the latter by the former. The Iraqis have simply made a choice to accept what they want from the Project and apparently to discard the rest. Thus, basing the assessment solely on what seems to have been chosen, there appear to be only moderate risks associated with this dimension, therefore socio-political sustainability is evaluated as **Moderately Likely**.

Institutional sustainability

97. The institutional sustainability of the Project is also generally good. The government authorities at both national and local level have clearly been strengthened by the capacity building programme, and although there appears to have been some turnover of staff in Baghdad, most personnel remain in post in the south where security is significantly more stable. Again, the evolutionary nature of the Project through its various phases has helped here, hence there appears to be fairly good coordination and cooperation between ministries although the need for greater networking and sharing of knowledge remains. The MIN certainly addressed some of these issues, however, basic problems and administrative failures outside the remit of the Project appear to have negated efficient use of this. Primarily there has been a lack of continuous power to operate the MIN, and while it was designed to be robust, there was an inherent weakness regarding software updates. A higher frequency than expected of power cuts, plus simple logistical failure by the various ministries in having sufficient fuel available to run back-up generators seems to have had significant knock-on effects, since lack of power has meant that the necessary software upgrades have not taken place and there are now further problems in synching different versions of software preventing further upgrades. As a result, since handover, the MIN is either working inefficiently or has ceased to function. The portable water monitoring equipment still seems to be in use, and monitoring programmes related to the phytotechnological aspects of the Project continued to run until these were ended in 2008 by the drought providing good practical experience for the staff involved. Overall, there appear to be minor risks affecting this dimension of sustainability, therefore institutional sustainability is adjudged to be **Moderately Likely**.

Environmental sustainability

98. The environmental risks have become severe and have arisen towards the end of the Project and continued since. The 2008/9 drought in Iraq was extremely severe with total rainfall accumulations for many areas averaging far below 50% of normal levels and for some less than 33%, and the country experienced an 8% loss of renewable water resources. The Tigris and Euphrates rivers fell by more than two-thirds in the summer months⁵², and the effects were exacerbated on the availability of water for re-flooding by the diversion of water for agricultural irrigation to sustain basic food production. Furthermore, the drought coincided with a fiscal crisis in Iraq resulting in a budget deficit of US\$16 billion in 2009, mainly due to falling oil revenues. The resultant budget reductions severely impacted most initiatives, including environmental and water management works. While the environmental conditions were beyond what normal project contingencies, the TET feels that in many ways, the problem was there well ahead of the Project, in that demands upstream for water have been steadily increasing, particularly in Turkey as its economy develops and grows. Both Syria and the former Iraqi regime have complained about reduced water supplies from Turkey since the completion of the first Turkish dams at the beginning of the 1990s, and another 22 dams are either underway or complete on the Tigris and Euphrates rivers, including the Ilisu Dam⁵³. The situation is exacerbated by Iran diverting some of its rivers away from shared marshland for use elsewhere. Thus, the increased requirements for water for re-flooding the Iraqi Marshlands were always going to be precarious given the reduced flows in the rivers, and despite attempts to block and re-divert the water from the main drainage channels, difficulties were apparent. Figures from CRIM show that the target for re-flooding is 5,560 km², i.e. 66% of the original area of 8,350 km² in 1973⁵⁴. Unfortunately, extra stress has been placed on the system by the two-year drought outlined above which meant that by August 2009 only 20% of the target (1,112 km²) had been re-flooded, and the Iraqi Government approached the Office of the UN Secretary-General in November 2009 to attempt to get assistance in increasing international water sharing within the river basins (see paragraph 83).

99. DTIE stresses a different viewpoint, focussing on internal rather than external factors⁵⁵. Its argument is that given the myriad of pressing priority concerns to address basic human needs in the post-conflict period, it would have been unrealistic to include the resolution of the long-standing regional disputes over water into this project. Turkey, Syria, and Iraq have been having water disputes at least since the 1960s, and dialogue has barely been resumed to date. This would be considered as an unattainable goal. In fact, DTIE management provided guidance for the Project not to include the transboundary issues into this particular project. Instead, the Project apparently did liaise with UNEP units – the Division of Environmental Policy Implementation (DEPI) and the Division of Early Warning and Assessment (DEWA) – that were addressing transboundary water resource management, through UNEP-wide conference calls discussing Iraq-related programming. In addition, IETC participated in transboundary water discussions downstream of the marshes through a high level meeting on the Restoration of Iraqi Marshlands and the Marine Environment⁵⁶, which was organized by the Regional Organization for the Protection of the Marine Environment and the DEPI Post Conflict Assessment Unit. Furthermore, the Project apparently cooperated closely with the Italian efforts to support hydrological and water quantity-related assessment work, which was also included under the donor coordination umbrella. Studies of the Italian group generated various scenarios of re-flooding with available water resources and concluded that more efficient management of water resources within the country could contribute significantly to alleviating water quantity concerns in the Marshlands. For example, the agricultural sector, the largest water-consuming sector of Iraq, uses around 40-42 billion cubic meters (more than 85% of water available) but with quite low water productivity, low efficiency and inadequate cropping patterns where there is plenty of scope to decrease demand thereby securing greater environmental flows. Inadequate dam and reservoir operations cause an estimated annual loss of 8 billion cubic meters, which can also be reduced. While the TET agrees with the validity of controlling these losses and inefficiencies, in its view to undertake the radical structural reforms of the agricultural and domestic sectors necessary would seem as unrealistic for the Project as the DTIE suggests resolving the international

⁵² UNDG ITF 2009 Annual Report

⁵³ Please see Annex VII for comments

⁵⁴ This target, plus the 10% (835 km²) of the marshes never drained (figure remaining in 2003), provides an overall target of 6,395 km² which is 75% of the original marsh area as measured in 1973.

⁵⁵ Please see Annex VII for comments

⁵⁶ <http://imos.grid.unep.ch/uploads/report-irak-bahrain-meeting-web.pdf>

dispute would have been, and maintains that while there was never an opportunity to do this, there was a possible opportunity in 2003 to explore the international option which was never taken (see paragraph 83).

100. It remains that the impact of the drought for the Project has become severe. In 2008, the sanitation pilot at Al-Chibayish and the planted phytotechnology site at Al-Jeweber dried up, followed shortly after by Auda Marsh, the natural phytotechnology demonstration. All have been abandoned. Problems have also been recorded at some of the drinking water stations where low flows have caused temporary shortages of source water for the units; at the time of the TE field visit in September 2010, this was the case at Al-Sewelmat. Although the Iraqi Government probably overstated the case in their letter to the Office of the UN Secretary-General where they state that “*five years of efforts to revitalise the marshes went for naught, the region’s environmental system was shattered and its people are fleeing once again*”, the situation had become severe and people were once again leaving from the worst affected areas, even though some parts of the restored system apparently continue to thrive. However, since then, progress has again been made through continuing engineering works in line with the MoWR’s Master Plan (see paragraphs 36 and 96), and the re-flooded area stood at 2,294 km² or 41% of the target in December 2010. The Plan assumed that the target could be achieved on the basis of existing river flows, but the drought has impacted that it remains unclear as to the long-term effects. With the works in the Plan due to be completed in 2011, it is hard to see that the target will be achieved merely by completing the Plan⁵⁷; it, and with the radical reforms required of the agricultural and domestic sectors to use water more efficiently (see paragraph 99), the sustainability of those parts of the Project that remain working, remain highly dependent upon the quantity of water reaching the area from outside of Iraq⁵⁸. The likelihood of this remaining stable looks small at present. Therefore, the environmental sustainability of the Project is evaluated as **Moderately Unlikely**.

Since UNEP deems each risk dimension of sustainability critical, the overall rating for sustainability cannot be higher than the rating of the dimension with lowest rating, and as such the overall sustainability is ranked as **Moderately Unlikely**⁵⁹.

CATALYTIC ROLE AND REPLICATION

101. The Project has attempted to play a catalytic role through a number of means. The establishment of the MIN and the IMOS have played an important role in providing a scientific basis for planning and decision-making and for facilitating coordination amongst the Government Ministries and other stakeholders involved in the restoration of the marshes. Delivery of clear information, shared communally by a networked system has, by common consent, improved priority setting and policy formulation, although the TET was unable to identify concrete examples. Unfortunately, these benefits have declined more recently as the MIN has become inefficient (see paragraph 38) and there remains no management strategy or plan for the restoration of the Marshlands⁶⁰. Curiously, given that they were identified as a priority during consultation with the Iraqi stakeholders, the surveys of demographic and socio-economics, and of solid waste, while entered into the MIN, also do not appear to have been used to influence practical management issues.

102. The major catalytic role of the Project, however, has been that of demonstrating ESTs and developing associated capacities to operate and monitor them. The biggest success is undoubtedly the production of drinking water by reverse osmosis through containerised units. This EST was a well-known technique in Iraq prior to the Project and was widely practised by major installations like petrochemical plants and electricity generating stations to produce purified water for operations at the facilities. Surplus amounts were provided to the community free-of-charge or at reduced prices, but this was very limited in scale and occurred mainly in Basra. The technique does not appear to have been in use in Missan and was known only from two locations in Thi-Qar – one a small station installed in 2003 by the International Medical Corps at Al-Kauther in Al-Chibayish with a capacity of 20 m³/hr, and another small station was in Al-Foohod

⁵⁷ Please see Annex VII for comments

⁵⁸ Please see Annex VII for comments

⁵⁹ Please see Annex VII for comments

⁶⁰ This is not to say there is no work or commitment – the target of restoring 75% of the Marshlands remains; annual budgets have been allocated since 2005 with evidence this will continue until 2014; the Marshlands are included in the National Development Strategy 2010-14; there is a Master Plan for re-flooding the marshlands; a relatively large number of projects covering health, education, roads, and settlements have been implemented in the area; and work is being undertaken on a 30-year Water Budget.

District. Therefore, the current Project can be considered as pioneering such facilities at least in rural areas. The demonstration appears to have been very successful for between 2006 and 2010, the number of such drinking water stations funded by the Iraqi Government in the Marshlands increased to 169 stations, with 71 in Thi-Qar, 61 in Missan, and 37 in Basra, with capacities ranging from 25 to 200 m³/hr. Although no conclusive proof exists that the Project led directly to this replication, the circumstantial evidence of the timing suggests a very strong causal link.

103. Other demonstrations of ESTs appear to have been less successful. The deployment of solar stills at a household level did not have either the desired or expected effect and most were rejected, or at least not used, by the households concerned. The phytotechnology demonstrations for treating sewage and domestic wastewater, and for improving the quality of water to be used for re-flooding, also did not really find favour. Although the pilots were undertaken with full cooperation from the MoE, MoWR, CRIM, and Thi-Qar University, and significant amounts of capacity-building were undertaken through training and hands-on experience, when they were closed prematurely in mid-2008 because of the effects of the drought, no interest was shown in trying again elsewhere, or perhaps more importantly, in replicating them, e.g. when a large-scale project was implemented in 2010 to divert water from the Main Drainage Canal to the Central Marsh in Thi-Qar south of Nasyria, no phytotechnology was used and the water flowed untreated to the marsh.

104. Three other large international projects were undertaken focussed on the Marshlands at the same time as the UNEP project – the Canadian Iraqi Marshlands Initiative, the New Eden Project funded by the Italians, and USAID – but given these all commenced in early 2005 and had been planned in 2003, these cannot be considered as catalytic financing. However, Phase I of the UNEP Project did lead directly to further funding being made available by the Governments of Italy and Japan and these can, therefore, be considered as leveraged funds to continue activities. Furthermore, June 2009 saw the commencement of a US\$ 3.1 million joint UNEP-UNESCO project entitled “*Natural Cultural Management of the Iraqi Marshlands as World Heritage*” which builds directly on this project by addressing the emerging priority needs to promote longer-term sustainable management practices by using the World Heritage inscription process as a tool to develop and implement a management framework. The joint project aims to establish a longer-term preservation and management plan of the cultural and natural heritage in this area in accordance with the World Heritage Site programme by identifying and implementing some key sustainable local area development and environmental management practices on a pilot basis.

The Project has displayed high levels of innovation in introducing and demonstrating ESTs to the Iraqi Marshlands, and at least one of these appears to have been scaled-up through replication by the Government. The early phase of the Project leveraged catalytic financing for further phases, and the Project as a whole appears to have been influential in attracting further funding and projects to the area, hence catalytic role and replication is evaluated as Satisfactory.

COUNTRY DRIVEN-NESS AND COORDINATION

105. Iraq and its stakeholders have been at the heart of this Project from its inception. Although UNEP was the first organisation to alert the international community to the deliberate destruction of the Marshlands by the former regime, it was only with the collapse of that regime that post-conflict assessments could determine the scale of the problems. These assessments, carried out by the new Iraqi authorities and the UN identified marshland degradation, lack of drinking water, and lack of sanitation as the three key needs. With this recognition, the Iraqi authorities prioritised management of the Marshlands in Iraq’s reconstruction and sought international assistance, submitting a number of project priorities to the first Donor Conference. The need for immediate environmental relief in the Iraqi Marshlands was raised as a priority by the high-level Iraqi delegation to Japan. In December 2003, the Prime Minister Koizumi of Japan was requested, in person, to prioritise marshland management and restoration by the Government of Iraq. In March 2004, the Iraqi Minister of Environment met with the Japanese Foreign Minister and Environment Minister, and again requested that Japan prioritise support for marshland management and restoration. Specifically, the Iraqi Minister of Environment requested assistance in the improvement of water quality as well as in the provision of technologies, equipment and training.

106. The Project has also encouraged local ownership by ensuring that implementation occurred in communities that were endorsed by local, governorate, and national institutions. This was achieved by implementing activities in communities only when the following three conditions had been met:

1. A demonstrated demand and support for interventions from community leaders
2. A clear pledge of security provision by the local communities
3. An endorsement of implementation by all stakeholders including ministries, governorates and local communities

By including the provision of security and the commitment of local communities to assist in implementation, security concerns and constraints were minimised and the sense of local ownership and responsibility built. Close cooperation was also achieved between several Government ministries and agencies, the three southern Governorate Councils (Basra, Missan and Thi-Qar), and with local communities. The Project also incorporated the Marsh Arabs' wish of not wanting to be treated separately from surrounding communities to prevent artificial divides and local conflicts by ensuring that activities were integrated into a wider regional development framework.

107. It is clear from much that has gone above that while the Project delivered all of its intended outputs, events since handover have conspired to prevent or interfere with the continued smooth running of many of the interventions. In particular, the recent drought has meant the abandonment of the phytotechnological research, although up until then the research programmes were continuing to produce results; power shortages have meant that the MIN has not been able to be operated efficiently; and some of the drinking water installations, especially the water stills, have not been properly maintained. However, the TET cannot find that this represents a lack of ownership or commitment; rather it represents a country struggling to come to terms with numerous political, economic, and environmental difficulties. There are encouraging signs that restoration and management of the Marshlands remain a Government priority and that significant resources are being directed to achieving this. The Project's extensive capacity building programme has undoubtedly helped with this and while certain aspects of the Project appear subsequently to have been largely ignored, (e.g. re-flooding the Central Marshes with water from the Main Drain without phytotechnological pre-treatment) technological, policy, and management coordination has improved. In particular, Iraq's commitment to sound environmental management has been reflected in its recent accession to several Multilateral Environmental Agreements including the Convention on Biodiversity, and the Ramsar Convention on Wetlands. Evidence for improved decision-making relating to the conservation and management of the Marshlands is difficult to come by (after all it is difficult to prove that a given decision has been taken because of a Project's intervention or that it would not have been taken anyway in the absence of the Project) but in some areas information generated by the Project does not appear to be being used to influence strategic or management decisions as it might, and plans for updating that information are absent, e.g. the two large surveys undertaken in Phase II-A (see paragraph 47). However, the demonstration of the reverse osmosis units appears to have been beneficial. While no direct link between the Project and the expansion of the use of such units within the three southern Governorates can be found, circumstantially the timing suggests the demonstrations were positive. Only the disinterest shown by the authorities in taking forward the phytotechnological parts of the Project suggests at a lack of full involvement in their original selection, but other unknown factors may be at play here.

The concept and implementation of the Project has clearly been country driven and UNEP have responded to this to ensure ownership at all levels. Subsequent actions suggest that problems remain, but many of these are the result of political, economic, and environmental difficulties rather than a lack of commitment; hence country driven-ness and coordination is evaluated as **Satisfactory**.

RECOMMENDATIONS

108. Given that the Project has now been closed for over a year, recommendations for its implementation are largely irrelevant. However, the TET includes two recommendations here for consideration.

- UNEP, perhaps through the Division of Environmental Law and Conventions, should contact the Office of the Secretary-General of the UN to see if it could provide facilitation services in response to the Government of Iraq's letter requesting the help of the UN to get other Contracting Parties of the Ramsar Convention to share water resources under the said convention. See paragraph 83.

- UNEP DTIE should communicate the following recommendations to the Government of Iraq for their consideration. These are practical issues affecting the original Project interventions that have been garnered from direct observation or from interviews conducted within Iraq.

| |
|--|
| <ul style="list-style-type: none"> • Greater efforts are required from the drinking water authorities in the three Governorates of Basra, Missan and Thi-Qar to maintain the drinking water installations in the Marshlands. This is true for the pilot projects as well as for tens of similar stations constructed later by the national and local Governments. The speed of maintenance has to be improved. <u>Reason:</u> <i>The TET was informed that in Basra Governorate alone there were 40 drinking water stations out of order. Among these stations was that implemented by the current project in Al-Mashab.</i> |
| <ul style="list-style-type: none"> • The use of alternative energy should be replicated to provide similar drinking water stations with power to augment the severe shortage of conventional sources of electricity in Iraq. <u>Reason:</u> <i>Conventional power supplies are intermittent and unreliable.</i> |
| <ul style="list-style-type: none"> • At Al-Hadam: <ul style="list-style-type: none"> ○ the station should be connected to the National Electricity Network by the appropriate local Authority; ○ the distribution network suffers from leakages and requires repairing; ○ the filters of the station need to be maintained or replaced; and ○ a room for the operator should be provided. <u>Reason:</u> <i>To improve the operational efficiency of the station.</i> |
| <ul style="list-style-type: none"> • At Al-Hadam: <ul style="list-style-type: none"> ○ the station should be connected to the National Electricity Network by the appropriate local Authority; ○ the distribution network suffers from leakages and requires repairing; ○ the filters of the station need to be maintained or replaced; and ○ a room for the operator should be provided. <u>Reason:</u> <i>To improve the operational efficiency of the station.</i> |
| <ul style="list-style-type: none"> • At Al-Sewelmat: <ul style="list-style-type: none"> ○ the uptake canal needs to be maintained, or a new canal of about 50m from the nearby river needs to be dug; ○ the distribution network has been widely damaged and requires repairing. The current over-ground network should be replaced by an underground network thereby giving better protection; ○ the station should be connected to the National Electricity Network by the appropriate local Authority; and ○ a room for the operator should be provided. <u>Reason:</u> <i>To improve the operational efficiency of the station.</i> |
| <ul style="list-style-type: none"> • The use of household solar stills must remain a good option for providing safe drinking water to scattered marsh residents in remote areas. Although little success, if any, was achieved under the initial experiments involving of nine households during this Project, the pilot deserves to be repeated with more efficient equipment and better follow-up to better understand its use and the nature of the problems. <u>Reason:</u> <i>A low-cost source of clean drinking water needs to be found for the most remote rural households. Despite the low success achieved in the present demonstration, closer initial supervision and follow-up could generate success.</i> |
| <ul style="list-style-type: none"> • Use of the MIN requires a comprehensive revision. The TET received complaints from the |

operators on the difficulties of getting access to the Internet. Improved lines of communication and software are required, and increasing the capacity of the workers and finding ways of reducing the turnover of the skilled staff have to be considered.

Reason: *The TET received complaints from the operators on the difficulties of getting access to the Internet. Improved lines of communication and software are required, and increasing the capacity of the workers and finding ways of reducing the turnover of the skilled staff have to be considered.*

LESSONS LEARNED

109. Lessons learned have been arranged under project-related headings, and cross-referenced back to the paragraph where they appear. Further discussion and key points for future projects have been added in this section.

DESIGN

#1 Simplicity of design can ensure effectiveness of implementation, especially in challenging circumstances. While the TE has noted that several aspects of the design were poor, notably the logframes, and that the resources were probably spread too thinly, one aspect of the design has been paramount in assuring the success of its implementation, and that is its simplicity. The Project was undertaken in some of the most challenging conditions it is possible to imagine, and although much of the success is due to the skills of those implementing it, the simplicity of its central design logic – coordinate, collect and analyse data, build capacity, demonstrate ESTs, raise awareness – was also key. Although inter-related, no one part depended on the success or otherwise of any other meaning management was free to adapt as necessary without fear of complex knock-on effects.

See paragraph 15

Key points for future projects:

a) *Designers should not shun simplicity of design, but strive for it, particularly where implementation conditions are likely to be difficult because of post-conflict security issues, such as low capacity in the project partners, or remoteness of the geographic area.*

#2 Post-conflict mechanisms focussed on immediacy of results may not be the optimum vehicle for addressing long-term environmental challenges. There is always going to be a requirement for projects to respond to the needs of a post-conflict situation. These are primarily humanitarian, and most of the calls made to the international public for donations appeal to the need to alleviate suffering. Multilateral agencies are not immune to this either – the governmental donors are in turn responding to internal political pressure from their public to be seen to be doing something and in turn pass this on to the implementation agencies. This project was no different and contained a large component attempting to provide safe drinking water, sanitation, and improved water quality. However, pressure of this sort is at odds with the more measured, longer-term approach needed to address many environmental challenges. While this Project has also provided a platform to scientifically ground the planning and decision-making necessary to manage the Marshlands, the short-term nature of the intervention is becoming clear in the limited sustainability being displayed by the MIN. Furthermore, the almost complete disregard of the wider environmental context, specifically the limited water resources available for restoration of the Marshlands, leaves many of the interventions particularly vulnerable.

See paragraph 17

Key points for future projects:

a) *Large-scale environmental challenges such as habitat restoration require longer-term interventions than post-conflict mechanisms may allow for. Post-conflict projects should focus very clearly on solving a set of immediate problems, as here, but be set more carefully in a more holistic framework.*

READINESS

#3 Too much international aid at one time may overwhelm limited national capacities. Very simply,

See paragraph
26

it is apparent that there were major problems involved in this Project's implementation because the capacity of the Iraqi Ministries was overwhelmed by the sheer scale of the international response. While an assessment of the risks and assumption of each project probably correctly forecast that the national capacity was able to deal with the requirements of each one, such risks probably did not take into account the number of projects being dealt with and hence the size of the cumulative capacity requirements necessitated.

Key points for future projects:

- a) *In a post-conflict situation where in-country capacity is already likely to be low, a phased approach to implementing projects would enable in-country agencies to cope better with the cumulative workload.*

MANAGEMENT

- #4 Sound application of adaptive management can achieve results in spite of considerable challenges.** One of the features of this Project has been the excellence of the adaptive management displayed in overcoming a host of serious challenges, mostly arising from the difficult security situation. Flexibility in approach, willingness to compromise, and innovativeness in technical management have all been demonstrated in bringing the Project and its components to completion.

See paragraph 63

Key points for future projects:

- a) *UNEP should stress the importance of adaptive management to project management and governance bodies from the outset and continue to provide a supportive environment in which flexibility of approach and innovativeness can be fostered.*

RELEVANCE

- #5 Capacity building through hands-on application of skills acquired through training should be encouraged by projects wherever possible.** Hands-on training is often espoused by organisations and projects as the optimal method – “*Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand*” – yet rarely is it achieved. In this Project, the approach was pretty much forced upon it because security concerns meant that it was impossible for foreigners to enter the country. Therefore, trained personnel were actively encouraged to develop their new skills through taking part in, or analysing, the various tasks implemented by the Project, and this direct and meaningful application of newly-acquired skills strongly reinforced the training while also increasing a sense of ownership amongst those taking part. Such an approach should be strongly encouraged elsewhere.

See paragraph 87

Key points for future projects:

- a) *Training programmes should incorporate reinforcement of skills acquisition by enabling trainees to actually take part in the implementation of meaningful project tasks.*

SUSTAINABILITY

- #6 Involvement of local stakeholders in the decision-making processes of a project buys goodwill and generates ownership which pays dividends for sustainability.**

And

- #7 Handing over pilot projects to the national authorities through an official Agreement promotes ownership and sustainability.** Although there have been some issues with the sustainability of some of this Project’s components, much of this has derived from external factors. One of the strengths of its sustainability, however, has been the level of ownership displayed by both the national and governorate authorities. This appears to have come about by involving the local stakeholders in the decision-making process related to the Project’s interventions and is perhaps best demonstrated by the exception – correspondence from the Basra Drinking Water Authority complains to the MoMPW that the site at Al-Masahab was not a priority location for a drinking water station and that the Authority had not been consulted. While this may have been some sort of internal political issue, it is of note that maintenance of stations in Basra (including Al-Masahab) is the worst of the three governorates, and that the Authority is attempting to privatise the said stations. The other key factor appears to be the official handing over of the water stations to the relevant authorities through an official written Agreement that states clearly the obligations attending the handover. The official nature of the Agreement, and the unambiguousness of the clauses contained therein, militates strongly towards sustainability.

See paragraphs 59 and 95

Key points for future projects:

- a) *Local stakeholders should be involved in the decision-making process to ensure that the project meets their real needs, not the needs they are considered to have.*
- b) *In handing over the operation of equipment, monitoring programmes, or similar, do so through written agreements that specify clearly what the minimum requirements of the new operating authority are.*

ANNEX I: TERMINAL EVALUATION TERMS OF REFERENCE

Terminal Independent Evaluation of the UNEP project

Terminal Evaluation of project CP/4010-06-02 (3925), “Support for Environmental Management of the Iraqi Marshlands (Project Extension Phase II-A): CPL 3925 and (Project Extension Phase II-B): CPL3956 + AE/4010-04-03 (AE2791) and AE/4010-04-71 (AE2794) for Phase I and CP/4010-07-05 (CP3A24) for Phase III

1. PROJECT BACKGROUND AND OVERVIEW

Project rationale

The Iraqi Marshlands constitute the largest wetland ecosystem in the Middle East, with environmental and socio-cultural significance. Assessments of environmental conditions in Iraq, as reported by UNEP and the UN/World Bank Needs Assessment Initiative for the Reconstruction of Iraq, have identified the destruction of the Iraqi Marshlands as one of the major environmental and humanitarian disasters facing Iraq (United Nations and World Bank, 2003). Critical problems and associated priority needs for the Iraqi Marshlands identified by the Iraqi authorities and the UN assessments include, among others, the following:

- Marshland degradation: The flooding of dried areas started in 2003, with 40 to 50 percent of the original area has been re-inundated to date, with varying degrees of ecosystem recovery (UNEP, 2005). Marsh water is contaminated with pesticides, salt from the dried surface and from untreated industrial discharge and sewage from upstream. Haphazard breaching of embankments has also resulted in stagnant contaminated water in some areas, impacting vegetative and fish recovery. In addition, broken sewage treatment facilities and leaky channels have resulted in significant diversion of contaminated sewage water from the Baghdad area into the Marshlands. Water quality and marshland management is an urgent priority to protect human health and livelihood, and to preserve biodiversity and the ecosystems.
- Lack of drinking water: The 2003 UN inter-agency assessment and a public health survey by the United States Agency for International Development (US AID) found that the provision of safe drinking water is the critical priority for the residents in the Iraqi Marshlands (United Nations, 2003). While some residents are able to purchase tanker water, many, particularly those living with the marshes, currently obtain drinking water directly from the marshes without treatment (US AID 2004). Recent surveys also showed that up to 13% of southern households (both urban and rural) get their drinking water from unsafe natural sources, and 19% from tank trucks. These rates are approximately 3 times higher than Baghdad, Centre, and North regions of Iraq, indicating the low level of basic services available to the southern region (UNDP, 2006).
- Lack of sanitation: Assessments found that most settlements lack basic sanitation systems, and wastewater is often drained through open channels to the nearest stream or to the street. The presence of human waste in streets was noted in 50 percent of villages in the region. The provision of wastewater treatment services is therefore a critical necessity for public health. In addition, the return of displaced persons to the marshland area continues to place increasing burden on the provision of drinking water and sanitation. UNEP water quality monitoring efforts found evidence of faecal contamination in all the samples collected (UNEP, 2006).

The project has three phases, which are inter-linked and complementary, and contribute towards achieving the overall development goal of the project; to support the sustainable management and restoration of the Iraqi Marshlands in order to improve the ecosystem and sustainable livelihood.

Specific objectives for Phase I were:

- To monitor and assess baseline characteristics of the marshland conditions, to provide objective and up-to-date information, and to disseminate tools needed for assessment and management

- To build capacity of Iraqi decision makers and community representatives on aspects of marshland management, including: policy and institutional aspects, technical subjects, and analytical tools
- To identify environmentally sound technology (EST) options that are suitable for immediate provision of drinking water and sanitation, as well as wetland management, and to implement them on a pilot basis
- To identify needs for additional strategy formulation and coordination to develop longer-term marshland management plan, based on pilot results and stakeholder dialogue

Specific objectives for Phase IIA were:

- To support data collection and analysis in water resource, environmental, and socio-economic and land planning categories, and share such information to help fill the recognized gap in data availability for marshland management
- To increase the number of Iraqi institutions with access to the platform for data and analytical tool sharing, promoting the network necessary to move towards marshland management plan development and implementation
- To provide necessary hardware to major national and governorate-level institutions, and to strengthen capacity in data collection, management, and analysis

Specific objectives for Phase IIB were:

- To provide safe drinking water utilizing environmentally sound technologies (EST) on a pilot basis in an Iraqi community
- To build capacity of decision makers and community representatives on water quality management and safe drinking water provision
- To raise the capability and awareness of local communities, particularly women, on marshland environment and health impacts through local level initiative support

Specific objectives for Phase III were:

- To investigate the potential for alternative energy sources in the pilot provision of safe drinking water utilizing environmentally sound technologies (ESTs) in an Iraqi community
- To improve water quality and wetland conditions by utilizing ESTs on a pilot basis
- To raise the capability and awareness of decision makers and local communities about marshland management by supporting targeted training and local level initiatives

Executing Arrangements

This project was implemented through the UNEP International Environmental Technology Centre (IETC) of the Division of Technology, Industry, and Economics (DTIE). The Project Coordinator in Japan was responsible for overall coordination of activities.

The line ministry for this project was the Ministry of Environment, in close cooperation with the Ministry of Water Resources and the Ministry of Municipalities and Public Works. The project engaged the National Coordinator, who is an Iraqi citizen, to facilitate local coordination, execution, and monitoring of activities within Iraq. The Project Implementation Unit (PIU) was established within the Ministry of Environment, operating in coordination with the National Coordinator.

UNEP was expected to carry out its planned activities with the following project partners and stakeholders:

- **Government:** Ministry of Environment, Ministry of Water Resources, Ministry of Municipalities and Public Works, Governorates of Basra, Missan, and Thi-Qar, National Parliament Marshland Committee
- **Donors:** Italy, Japan, USA, Canada
- **Non-Governmental and Educational Organizations:** Iraq Foundation, Marsh Arab Forum in Basra, Missan, and Thi-Qar, Television for Environment (TVE), International Lake Environment Committee (ILEC), Global Environment Centre Foundation (GEC), University of Basra, Thi-Qar University
- **International Organizations:** UN Country Team, UNOPS, UNDP, WHO, UNICEF, UNESCO, UNHCR, Habitat, World Bank

Within UNEP, communication and dialogue was maintained through the Iraqi Policy Group teleconferencing, with members from DTIE, DEPI, DRC, DCPI, and others, as well as substantive level communication among DTIE, DEPI Post Conflict and Disaster management Branch. Continued cooperation was sought with the Regional Office for West Asia (ROWA), particularly for the organization of training activities and other activities as appropriate. The video production was expected to be coordinated by the DTIE Press Officer, who is also part of DCPI. In addition, previous work carried out by DEWA on remote sensing and satellite imagery, which was partly supported within the framework of the first phase of this project, was to be utilized as needed.

Legislative mandate

RELEVANT GC DECISIONS

The relevant GC decisions for this project include the following:

- GC 24/1: Implementation of decision SS.VII/1 on international environmental governance, particularly II on Bali Strategic Plan for Technology Support and Capacity-building
- GC 24/16: Updated water policy and strategy of the United Nations Environment Programme
- GC23/1 Implementation on decision SS. VII/1 on international environmental government, particularly I on Bali Strategy Plan for Technology Support and Capacity Building
- GC23/2 on updated water policy and strategy of UNEP, based on GC22/2 on water policy and strategy of UNEP
- GC22/8 on further improvement of environmental emergency prevention, preparedness, assessment, response, and mitigation

Specifically, the project makes direct contributions to implement the Updated UNEP Water Policy and Strategy (GC24/16). The project contributions fall under the Management Component of the Water Policy and Strategy, particularly on Integrated Water Resource Management implementation. The project addresses the conceptual principle of the promotion of ecosystem-based approaches within the UNEP Water Policy and Strategy, particularly the specific ecosystem of the Iraqi Marshlands, and social, cultural, and economic, and environmental needs for sustainable water resource management within the area, whose residents must rely largely on the services provided by the wetland ecosystem.

Other relevant earlier GC decisions include GC21/10 and CG 21/11.

Millennium Development Goal

The relevant Millennium Development Goal and WSSD Targets include the following:

- MDG: Goal 7, ensuring environmental sustainability, Target 10, “halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation.”
- WSSD: Johannesburg Plan of Implementation, on sanitation provision.

Project Activities

The duration of the entire project was five years, beginning in August 2004 and ending in December 2009.

The project activities were executed in four phases:

Phase I: August 2004- December 2007

1. Strategy formulation and coordination
2. Baseline data collection and analysis
3. Capacity Building
4. Pilot implementation of ESTs (6 communities) and community level initiatives
5. Awareness raising

Phase II-A: February 2006-March 2008

1. Strategy formulation and coordination
2. Baseline data collection and assessment

3. Capacity building on the Marshland Information Network (MIN) management

Phase II-B: June 2006-June 2008

1. Capacity Building on drinking water provision and water quality management
2. Pilot implementation of ESTs (1 community) and community level initiatives
3. Awareness rising

Phase III: September 2007-December 2009

1. Implement a pilot project for alternative energy use to facilitate drinking water provision
2. Implement a pilot project for water quality/wetland improvement
3. Organize a training course to train Iraqi partners on wetland restoration and solid waste
4. Support local community level initiatives on marshland management
5. Conduct monitoring of pilot activities and disseminate results
6. Evaluate project outcomes and results by organizing a project evaluation meeting

Budget

The project is funded through UNDG Iraq Trust Fund, financed by the Governments of Japan and Italy a total cost of the project of US \$13,747,234.

- Phase I: Financed by Government of Japan (US \$11 million)
- Phase II-A: Financed by Government of Italy (US \$947,234)
- Phase II-B: Financed by Government of Japan (US \$1 million)
- Phase III: Financed by Government of Japan (US\$ 900,000)

2. TERMS OF REFERENCE FOR THE EVALUATION

2.1 Objective and Scope of the Evaluation

The objective of this terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. In addition, the evaluation will assess to what extent the recommendations from previous evaluations were taken into consideration. This project is made up of three phases, which are inter-linked and complementary, and contribute towards achieving the overall development goals of the project, which is to support the sustainable management and restoration of the Iraqi Marshlands.

The evaluation will focus on the following main questions:

- To what extent has the project identified and demonstrated alternative energy sources and environmentally sound technology (EST) options that are suitable for immediate provision of drinking water and sanitation, as well as wetland management?
- To what extent has the project built capacity of Iraqi decision makers and communities on aspects of water quality management and safe drinking water provision as well as marshland management and health impacts including: policy and institutional aspects, technical subjects, and community engagement?
- Has the project succeed in identifying needs for additional strategy formulation and coordination to develop longer-term marshland management plan, based on pilot results and stakeholder dialogue?
- To what extent has the project supported data collection and analysis in water resource, environmental, and socio-economic categories, and shared such information to help fill the recognized gap in data availability for marshland management?

2.2 Methods

This terminal evaluation will be conducted by a team of national and international consultants as an in-depth evaluation using a participatory approach whereby the UNEP Evaluation Office, UNEP DTIE Project Manager, key representatives of the executing agencies and other relevant staff are kept informed and

regularly consulted throughout the evaluation. The consultant will liaise with the UNEP Evaluation Office and the UNEP/DTIE Project Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DTIE Project Manager, key representatives of the executing agencies and the UNEP Evaluation Office. Any comments or responses to the draft report will be sent to UNEP Evaluation Office for collation and the consultant will be advised of any necessary revisions.

The findings of the evaluation will be based on multiple approaches:

1. A desk review of project documents including, but not limited to:
 - (a) The project documents, outputs, monitoring reports (such as progress and financial reports), publications, management and action plans, evaluation report, recommendations, and relevant correspondence.
 - (b) Other project-related materials produced by the project staff or partners.
 - (c) Relevant material published on the project web-site: <http://marshlands.unep.or.jp/>
2. Face-to-face and telephone interviews with project management and technical support including UNEP/DTIE project manager and Fund Management Officer, and other relevant staff at UNEP as necessary.
3. Face-to-face and Telephone interviews with intended users for the project outputs and other stakeholders involved with this project, such as the NGOs and international organizations involved. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organizations. As appropriate, these interviews could be combined with an email questionnaire.
4. Field visits to project staff and target audiences; the international evaluator will visit key project management staff of UNEP/DTIE in Japan and France. The national evaluator will visit key project staff in France and key project sites and staff in Iraq, and key audiences for the project's outputs will be canvassed for their opinions in relation to the project.

Key Evaluation principles

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions "*what happened?*" and "*what would have happened anyway?*". These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies 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 evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

2.3 Project Evaluation Parameters and Ratings

The success of project implementation will be rated on a scale from 'highly unsatisfactory' to 'highly satisfactory'. In particular the evaluation shall **assess and rate** the project with respect to the eleven categories defined below⁶¹.

It should be noted that many of the evaluation parameters are interrelated. For example, the 'achievement of objectives and planned results' is closely linked to the issue of 'sustainability'. Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts and is, in turn, linked to the issues of 'catalytic effects / replication' and, often, 'country ownership' and 'stakeholder participation'.

A. Attainment of objectives and planned results:

⁶¹ However, the views and comments expressed by the evaluator need not be restricted to these items.

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness*: Evaluate the **overall likelihood of impact achievement**, taking into account the “achievement indicators”, the achievement of outcomes and the progress made towards impacts. UNEP’s Evaluation Office advocates the use of the **Review of Outcomes to Impacts (ROtI)** method (described in Annex 7) to establish this rating. The analysis should specify whether the project has plausible causal pathways that link project activities to the achievement of Expected Accomplishments. It should also specify whether the intervention is likely to have any lasting differential impacts in relation to gender.
- *Relevance*: In retrospect, were the project’s outcomes consistent with those of the programme frameworks and thematic subprogrammes? Ascertain the nature and significance of the contribution of the project outcomes to the relevant GC decisions, and UNEP thematic subprogrammes discussing marshland management issues. To what extent does the project intervention link to the achievement of the MDGs (in particular Goal 7)?
- *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing, and any additional resources leveraged by the project, to the project’s achievements. Did the project build on earlier initiatives; did it make effective use of available scientific and / or technical information? Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Sustainability:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time. **Application of the ROtI method** described in Annex 7 will also assist in the evaluation of sustainability.

Five aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources*: Are there any financial risks that may jeopardize sustenance of project outcomes and onward progress towards impact? What is the likelihood that financial and economic resources will not be available once the project funding ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project’s outcomes)? To what extent are the outcomes and eventual impact of the project dependent on continued financial support?
- *Socio-political*: Are there any social or political risks that may jeopardize sustenance of project outcomes and onward progress towards impacts? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public/stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance*: To what extent is the sustenance of the outcomes and onward progress towards impacts dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.

- *Environmental:* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes. Would these risks apply in other contexts where the project may be replicated?

C. Catalytic Role and Replication

The catalytic role of the UNEP is embodied in its approach of supporting the creation an enabling environment, investing in activities which are innovative and show how new approaches and market changes can work, and supporting activities that upscale new approaches to a national (or regional) level to sustainably achieve global environmental benefits.

In general this catalytic approach can be separated into three broad categories of activities: (1) “**foundational**” and enabling activities, focusing on policy, regulatory frameworks, and national priority setting and relevant capacity (2) **demonstration** activities, which focus on demonstration, capacity development, innovation, and market barrier removal; and (3) **investment** activities, full-size projects with high rates of co-funding, catalyzing investments or implementing a new strategic approach at the national level.

The three categories approach combines all the elements that have been shown to catalyze results in international cooperation. Evaluations in the bilateral and multilateral aid community have shown time and again that activities at the micro level of skills transfer—piloting new technologies and demonstrating new approaches—will fail if these activities are not supported at the institutional or market level as well. Evaluations have also consistently shown that institutional capacity development or market interventions on a larger scale will fail if governmental laws, regulatory frameworks, and policies are not in place to support and sustain these improvements. And they show that demonstration, innovation and market barrier removal do not work if there is no follow up through investment or scaling up of financial means.

In this context the evaluation should assess the catalytic role played by this project by consideration of the following questions:

- **INCENTIVES:** To what extent have the project activities provided incentives (socio-economic / market based) to contribute to catalyzing changes in stakeholder behaviours?
- **INSTITUTIONAL CHANGE:** To what extent have the project activities contributed to changing institutional behaviours?
- **POLICY CHANGE:** To what extent have project activities contributed to policy changes (and implementation of policy)?
- **CATALYTIC FINANCING:** To what extent did the project contribute to sustained follow-on financing from Government and / or other donors? (this is different from co-financing)
- **PROJECT CHAMPIONS:** To what extent have changes (listed above) been catalyzed by particular individuals or institutions (without which the project would not have achieved results)?

(Note: the ROTI analysis should contribute useful information to address these questions)

Replication approach, in the context of UNEP projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources).

Is the project suitable for replication? If so, has the project approach been replicated? If no effects are identified, the evaluation will describe the strategy/approach adopted by the projected to promote replication effects.

D. Stakeholder participation / public awareness:

This consists of three related and often overlapping processes: information dissemination, consultation, and “stakeholder” participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the UNEP project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project. Have all publications funded with GEF support been technically and scientifically vetted before publication and accredited to UNEP and GEF?

E. Country ownership / driven-ness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating information on marshlands that catalyzed action in Iraq to improve decisions relating to the conservation and management of the marshlands.
- Assess the level of country commitment to the generation and use of research related to the management of marshlands during and after the project, including in regional and international fora.

F. Achievement of outputs and activities:

Delivered outputs: Assessment of the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness. Especially the TE will;

- Assess the soundness and effectiveness of the methodologies used for developing the technical documents and related management options in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.

G. Preparation and Readiness

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

H. Assessment monitoring and evaluation systems.

The evaluation shall 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 Terminal Evaluation will assess whether the project met the minimum requirements for 'project design of M&E' and 'the application of the Project M&E plan' (see minimum requirements 1&2 in Annex 4). UNEP projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

I. Implementation approach:

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

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well

the management was able to adapt to changes during the life of the project to enable the implementation of the project.

- Assess the extent to which the project responded the mid term review / evaluation (if any).
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.
- The evaluation should also consider the following:
- How effectively has UNEP delivered the project as ‘One UNEP’ through effective collaboration across UNEP Divisions and with collaborating partners?
- To what extent does the project implementation approach foster South-South collaboration?

J. M&E during project implementation

- *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 (see Annex 4) 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 evaluator should use the following questions to help assess the M&E design aspects:

SMART-ness of Indicators

- Are there specific indicators in the log frame for each of the project objectives and outcomes?
- Are the indicators relevant to the objectives and outcomes?
- Are the indicators for the objectives and outcomes sufficient?
- Are the indicators quantifiable?

Adequacy of Baseline Information

- Is there baseline information?
- Has the methodology for the baseline data collection been explained?
- Is desired level of achievement for indicators based on a reasoned estimate of baseline?

Arrangements for Monitoring of Implementation

- Has a budget been allocated for M&E activities?
- Have the responsibility centers for M&E activities been clearly defined?
- Has the time frame for M&E activities been specified?

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?

- *M&E plan implementation.* A Terminal Evaluation should verify that:
 - an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a logframe or similar);
 - annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings;
 - that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs;

- and that projects had an M&E system in place with proper training for parties responsible for M&E activities.
- Has the project completed the GEF Biodiversity Tracking Tools in accordance with requirements? (i.e. (i) at project inception, (ii) at mid term.
- *Budgeting and Funding for M&E activities.* The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

The review will consider the effectiveness of the M&E system (in defining performance indicators and collecting and analysing monitoring data on project progress) and follow-up on primary stakeholders' reactions to project activities. Is the project using 'results-based' management approaches?

- The review shall 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 review shall comment on how the monitoring mechanisms have been employed throughout the project's lifetime, whether this allowed for tracking of progress towards project objectives and how the project responded to the challenges identified through these mechanisms. The tools used might include a baseline, clear and practical indicators and data analysis systems, or studies to assess results that were planned and carried out at specific times in the project.

K. Financial Planning

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing. The review should assess whether the use of project funds is commensurate with the attainment of physical progress, efficacy and the timeliness of procurement and disbursement activities. The review should also assess the executing agency's use of GEF funds specifically for project activities as opposed to work conducted with their regular budgetary support.

The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co-financing as well as leveraged and associated financing.
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP Fund Management Officer of the project (table attached in Annex 1 Co-financing and leveraged resources).

L. UNEP Supervision and Backstopping

The purpose of supervision is to work with the executing agency in identifying and dealing with problems which arise during implementation of the project itself. Such problems may be related to project management but may also involve technical/substantive issues in which UNEP has a major contribution to make. The evaluator should assess the effectiveness of supervision / project management and administrative and financial support provided by UNEP including:

- the adequacy of project supervision plans, inputs and processes;
- the emphasis given to outcome monitoring (results-based project management);
- the realism / candor of project reporting i.e. are progress reports an accurate reflection of the project realities and risks;

- the quality of documentation of project supervision activities; and
- Financial, administrative and other fiduciary aspects of project implementation supervision.

In summary, accountability and implementation support through technical assistance and problem solving are the main elements of project supervision (Annex 6).

M. Complementarity with UNEP Medium Term Strategy and Programme of Work

UNEP aims to undertake GEF funded projects that are aligned with its strategy. Whilst it is recognised that UNEP GEF projects designed prior to the production of the UNEP Medium Term Strategy (MTS)⁶² / Programme of Work (POW) 2010/11 would not necessarily be aligned with the Expected Accomplishments articulated in those documents, complementarity may exist nevertheless. For this reason, the complementarity of GEF projects with UNEP's MTS / POW will not be formally rated; however, the evaluation should present a brief narrative to cover the following issues:

- *Linkage to UNEP's Expected Accomplishments.* The UNEP Medium Term Strategy specifies desired results in six thematic focal areas. The desired results are termed Expected Accomplishments. Using the completed ROI 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 magnitude and extent any contributions and the causal linkages should be fully described.
- *Project contributions that are in-line with the Bali Strategic Plan (BSP)*⁶³. The outcomes and achievements of the project should be briefly discussed in relation to the objectives of the UNEP BSP.
- *South-South Cooperation* 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 *ratings for the parameters A - K will be presented in the form of a table*. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

| | |
|----|-----------------------------|
| HS | = Highly Satisfactory |
| S | = Satisfactory |
| MS | = Moderately Satisfactory |
| MU | = Moderately Unsatisfactory |
| U | = Unsatisfactory |
| HU | = Highly Unsatisfactory |

2.4 Evaluation Report Format and Review Procedures

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Section 1 of this TOR. ***The ratings will be presented in the format of a table with brief justifications based on the findings of the main analysis.***

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

⁶² <http://www.unep.org/PDF/FinalMTSGCSS-X-8.pdf>

⁶³ <http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf>

- i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology.
- iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- iv) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A – K above).
- v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see Annex 1);
- vi) **Lessons (to be) learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone' and should:
 - Briefly describe the context from which they are derived
 - State or imply some prescriptive action;
 - Specify the contexts in which they may be applied (if possible, who when and where)
- vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

 1. Feasible to implement within the timeframe and resources available
 2. Commensurate with the available capacities of project team and partners
 3. Specific in terms of who would do what and when
 4. Contains results-based language (i.e. a measurable performance target)
 5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.
- viii) **Annexes** may include additional material deemed relevant by the evaluator but must include:
 1. The Evaluation Terms of Reference,
 2. A list of interviewees, and evaluation timeline
 3. A list of documents reviewed / consulted
 4. Summary co-finance information and a statement of project expenditure by activity
 5. Details of the project's 'impact pathways' and the 'ROtI' analysis
 6. The expertise of the evaluation team. (Brief CV).

TE reports will also include any formal response / comments from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP Evaluation Office.

Examples of UNEP Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to UNEP Evaluation Office are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. Where, possible, a consultation is held between the evaluator, Evaluation Office Staff, the Task Manager and key members of the project execution team. The consultation seeks feedback on the proposed recommendations and lessons. UNEP Evaluation Office collates all review comments and provides them to the evaluator(s) for their consideration in preparing the final version of the report.

2.5 Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

Segbedzi Norgbey, Chief,
UNEP Evaluation Office
P.O. Box 30552-00100
Nairobi, Kenya
Tel.: (254-20) 7623387
Fax: (254-20) 7623158
Email: segbedzi.norgbey@unep.org

With a copy to:

Chizuru Aoki, Senior Programme Officer
International Environmental Technology Centre (IETC)
Division of Technology, Industry and Economics (DTIE)
United Nations Environment Programme
1091 Oroshimo-cho, Kusatsu City, Shiga 525-0001, Japan
Tel: +81-77-568-4586
Fax: +81-77-568-4587
Email: chizuru.aoki@unep.or.jp

Mr. Takehiro Nakamura
Director, UNEP DTIE IETC
United Nations Environment Programme
2-110 Ryokuchi koen, Tsurumi-ku
Osaka 538-0036, Japan
Tel: +81-6-6915-4583
Fax: +81-6-6915-4610
Email: takehiro.nakamura@unep.or.jp

The final evaluation report will be published on the Evaluation Office website www.unep.org/eou. Subsequently, the report will be sent to DTIE for review. In addition the final evaluation report will disseminated to: the relevant DTIE Focal points, Relevant Government representatives, UNEP DTIE Professional Staff, The project's Executing Agency and Technical Staff.

2.6 Resources and Schedule of the Evaluation

This terminal evaluation will be undertaken by a team of evaluators (a national and an international evaluator) contracted by the Evaluation Office, UNEP. The contract of the national consultant will begin on ... of January 2010 and end on ...of March 2010 (6 weeks spread over 8 weeks) and the

contract of the international consultant will begin on ... of January 2010 and end on ... of March 2010 (6 weeks spread over 10 weeks). After an initial telephone briefing with the Evaluation Office and UNEP/DTIE, the evaluators will travel to Paris, France to meet with project management staff. After that the national consultant will travel back to Iraq to commence the field based study and the international consultant will travel to Japan to meet with the project management staff there. The national evaluator will forward his results and a draft report to the international consultant who will compile the study and submit a draft report to the UNEP Evaluation Office no later than 22nd of February 2010. Any comments or responses on the draft report will be sent to UNEP Evaluation Office for collation and the consultant will be advised of any necessary revisions. Comments on the final draft report will be sent to the consultant by 8th March 2010 after which, the consultant will submit the final report no later than 22nd of March 2010.

The evaluators should not have been associated with the design and implementation of the project. The evaluators will work under the overall supervision of the Chief, Evaluation Office, UNEP. The evaluators should be international experts in environmental management, ecosystem management, particularly wetlands. The consultants should have the following minimum qualifications: (i) experience in water quality, sanitation and marshland management; (ii) experience with management and implementation of development projects in developing countries; (iii) experience with project evaluation; (iv) experience in project management under post-conflict environment and under security constraints. Knowledge of UNEP programmes is desirable. Fluency in oral and written English is a must.

2.7 Schedule of Payment

The consultant shall select one of the following two contract options:

Lump-Sum Option

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon submission of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and **is inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Annex 1. OVERALL RATINGS TABLE

| Criterion | Evaluator's Summary Comments | Evaluator's Rating |
|---|------------------------------|--------------------|
| A. Attainment of project objectives and results (overall rating) Sub criteria (below) | | |
| A. 1. Effectiveness - overall likelihood of impact achievement (ROtI rating) | | |
| A. 2. Relevance | | |
| A. 3. Efficiency | | |
| B. Sustainability of Project outcomes (overall rating) Sub criteria (below) | | |
| B. 1. Financial | | |
| B. 2. Socio Political | | |
| B. 3. Institutional framework and governance | | |
| B. 4. Environmental | | |
| C. Catalytic Role | | |
| D. Stakeholders involvement | | |
| E. Country ownership / drivenness | | |
| F. Achievement of outputs and activities | | |
| G. Preparation and readiness | | |
| H. Implementation approach | | |
| I. Financial planning | | |
| J. Monitoring and Evaluation (overall rating) Sub criteria (below) | | |
| E. 1. M&E Design | | |
| E. 2. M&E Plan Implementation (use for adaptive management) | | |
| E. 3. Budgeting and Funding for M&E activities | | |
| K. UNEP Supervision and backstopping | | |

RATING OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

- A. Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The Terminal evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes..

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in any of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on ‘M&E Design’, ‘M&E Plan Implementation’ and ‘budgeting and Funding for M&E activities’ as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E plan implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on “M&E plan implementation.”

All other ratings will be on the GEF six point scale.

| GEF Performance Description | |
|-----------------------------|-----------------------------|
| HS | = Highly Satisfactory |
| S | = Satisfactory |
| MS | = Moderately Satisfactory |
| MU | = Moderately Unsatisfactory |
| U | = Unsatisfactory |
| HU | = Highly Unsatisfactory |

Annex 2. Co-financing and Leveraged Resources

Co-financing (basic data to be supplied to the consultant for verification)

| Co financing (Type/Source) | IA own Financing (mill US\$) | | Government (mill US\$) | | Other* (mill US\$) | | Total (mill US\$) | | Total Disbursement (mill US\$) | |
|--|------------------------------------|--------|---------------------------|--------|-----------------------|--------|----------------------|--------|--------------------------------------|--------|
| | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual |
| - Grants | | | | | | | | | | |
| - Loans/Concessional (compared to market rate) | | | | | | | | | | |
| - Credits | | | | | | | | | | |
| - Equity investments | | | | | | | | | | |
| - In-kind support | | | | | | | | | | |
| - Other (*) | | | | | | | | | | |
| - | | | | | | | | | | |
| -- | | | | | | | | | | |
| Totals | | | | | | | | | | |

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

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. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Table showing final actual project expenditure by activity to be supplied by the UNEP Fund management Officer. (Insert here)

Annex 3. Review of the Draft Report

Draft reports submitted to the UNEP Evaluation Office are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP Evaluation Office collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

Quality Assessment of the Evaluation Report

All UNEP Evaluation reports are subject to quality assessments by the Evaluation Office. These are used as a tool for providing structured feedback to the evaluator.

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

| GEF Report Quality Criteria | UNEP EO Assessment | Rating |
|---|---------------------------|---------------|
| A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable? | | |
| B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used? | | |
| C. Did the report present a sound assessment of sustainability of outcomes? | | |
| D. Were the lessons and recommendations supported by the evidence presented? | | |
| E. Did the report include the actual project costs (total and per activity) and actual co-financing used? | | |
| F. Did the report include an assessment of the quality of the project M&E system and its use for project management? | | |
| UNEP additional Report Quality Criteria | UNEP EO Assessment | Rating |
| G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action? | | |
| H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator? | | |
| I. Was the report well written? (clear English language and grammar) | | |
| J. Did the report structure follow EOU guidelines, were all requested Annexes included? | | |
| K. Were all evaluation aspects specified in the TORs adequately addressed? | | |
| L. Was the report delivered in a timely manner | | |

$$\text{Quality} = (2*(0.3*(A + B) + 0.1*(C+D+E+F)) + 0.3*(G + H) + 0.1*(I+J+K+L))/3$$

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of terminal 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, and unable to assess = 0.

Annex 5 – Introduction to Theory of Change / impact pathways, the ROTi Method and the ROTi Results Scoresheet

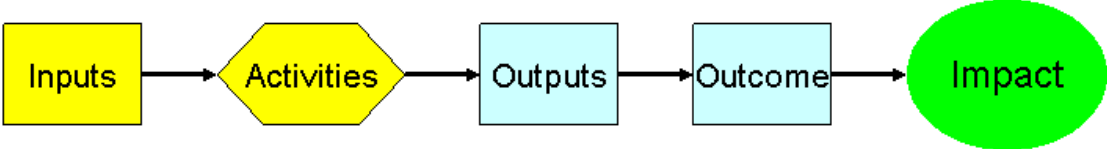
Terminal evaluations of projects are conducted at, or shortly after, project completion. At this stage it is normally possible to assess the achievement of the project’s outputs. However, the possibilities for evaluation of the project’s outcomes are often more limited and the feasibility of assessing project **impacts** at this time is usually severely constrained. Full impacts often accrue only after considerable time-lags, and it is common for there to be a lack of long-term baseline and monitoring information to aid their evaluation. Consequently, substantial resources are often needed to support the extensive primary field data collection required for assessing impact and there are concomitant practical difficulties because project resources are seldom available to support the assessment of such impacts when they have accrued – often several years after completion of activities and closure of the project.

Despite these difficulties, it is possible to enhance the scope and depth of information available from Terminal Evaluations on the achievement of results **through rigorous review of project progress along the pathways from outcome to impact**. Such reviews identify the sequence of conditions and factors deemed necessary for project outcomes to yield impact and assess the current status of and future prospects for results. In evaluation literature these relationships can be variously described as ‘Theories of Change’, Impact ‘Pathways’, ‘Results Chains’, ‘Intervention logic’, and ‘Causal Pathways’ (to name only some!).

Theory of Change (TOC) / impact pathways

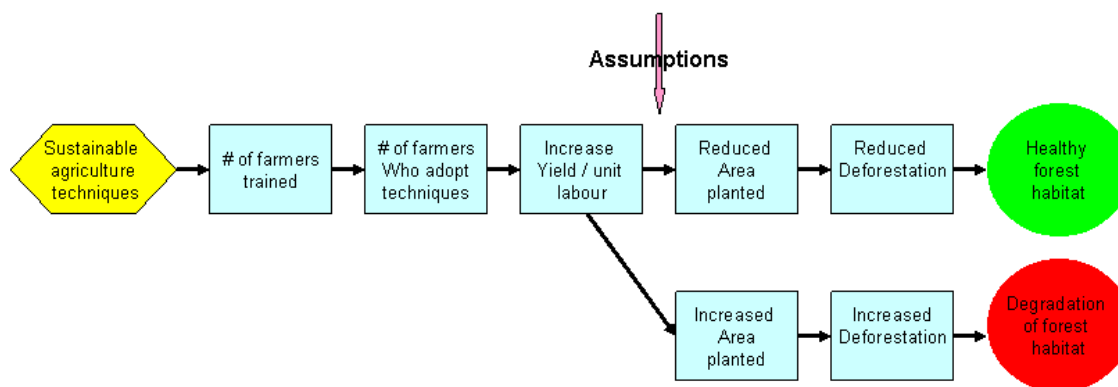
Figure 1 shows a generic impact pathway which links the standard elements of project logical frameworks in a graphical representation of causal linkages. When specified with more detail, for example including the key users of outputs, the processes (the arrows) that lead to outcomes and with details of performance indicators, analysis of impact pathways can be invaluable as a tool for both project planning and evaluation.

Figure 1. A generic results chain, which can also be termed an ‘Impact Pathway’ or Theory of Change.



The pathways summarise casual relationships and help identify or clarify the assumptions in the intervention logic of the project. For example, in the Figure 2 below the eventual impact depends upon the behaviour of the farmers in using the new agricultural techniques they have learnt from the training. The project design for the intervention might be based on the upper pathway assuming that the farmers can now meet their needs from more efficient management of a given area therefore reducing the need for an expansion of cultivated area and ultimately reducing pressure on nearby forest habitat, whereas the evidence gathered in the evaluation may in some locations follow the lower of the two pathways; the improved faming methods offer the possibility for increased profits and create an incentive for farmers to cultivate more land resulting in clearance or degradation of the nearby forest habitat.

Figure 2. An impact pathway / TOC for a training intervention intended to aid forest conservation.



The GEF Evaluation Office has recently developed an approach that builds on the concepts of theory of change / causal chains / impact pathways. The method is known as Review of Outcomes to Impacts (ROtI)⁶⁴ and has three distinct stages:

- a. Identifying the project's intended impacts
- b. Review of the project's logical framework
- c. Analysis and modeling of the project's outcomes-impact pathways

The **identification of the projects intended impacts** should be possible from the 'objectives' statements specified in the official project document. The next stage is to **review the project's logical framework** to assess whether the design of the project is consistent with, and appropriate for, the delivery of the intended impact. The method requires verification of the causal logic between the different hierarchical levels of the logical framework moving 'backwards' from impacts through outcomes to the outputs; the activities level is not formally considered in the ROtI method⁶⁵. The aim of this stage is to develop an understanding of the causal logic of the project intervention and to identify the key 'impact pathways'. In reality such processes are often complex; they often involve multiple actors and decision-processes and are subject to time-lags, meaning that project impact often accrues long after the completion of project activities.

The third stage involves analysis of the 'impact pathways' that link project outcomes to impacts. The pathways are analysed in terms of the '**assumptions**' and '**impact drivers**' that underpin the processes involved in the transformation of outcomes to impacts via **intermediate states** (see Figure 3). Project outcomes are the direct intended results stemming from the outputs, and they are likely to occur either towards the end of the project or in the short term following project completion. **Intermediate states** are the transitional conditions between the project's immediate outcomes and the intended impact. They are necessary conditions for the achievement of the intended impacts and there may be more than one intermediate state between the immediate project outcome and the eventual impact.

Impact drivers are defined as the significant factors that if present are expected to contribute to the realization of the intended impacts and **can be influenced** by the project / project partners & stakeholders. **Assumptions** are the significant factors that if present are expected to contribute to the realization of the intended impacts but are largely **beyond the control of the project** / project partners & stakeholders. The impact drivers and assumptions are ordinarily considered in Terminal Evaluations when assessing the sustainability of the project.

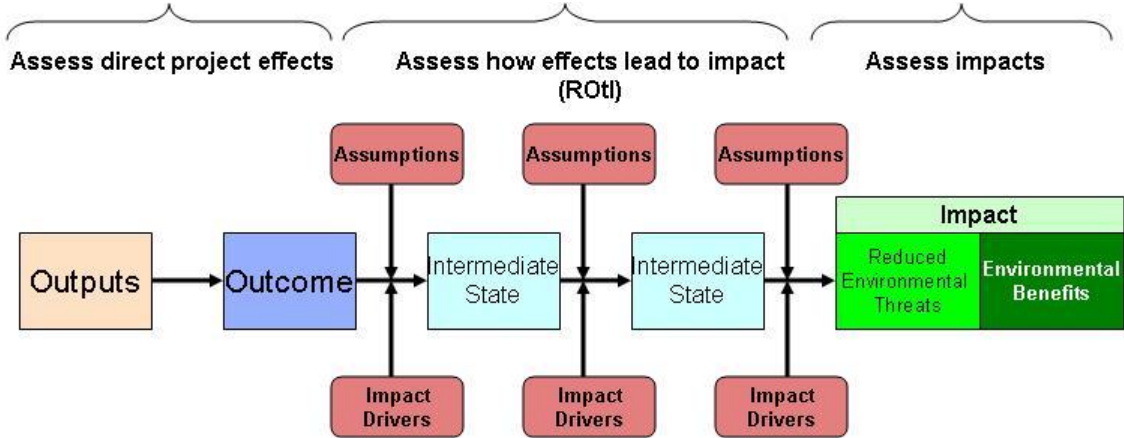
⁶⁴ GEF Evaluation Office (2009). ROtI: Review of Outcomes to Impacts Practitioners Handbook. http://www.gefweb.org/uploadedFiles/Evaluation_Office/OPS4/Roti%20Practitioners%20Handbook%2015%20June%202009.pdf

⁶⁵ Evaluation of the efficiency and effectiveness in the use of resources to generate outputs is already a major focus within UNEP Terminal Evaluations.

Since project logical frameworks do not often provide comprehensive information on the processes by which project outputs yield outcomes and eventually lead, via ‘intermediate states’ to impacts, the impact pathways need to be carefully examined and the following questions addressed:

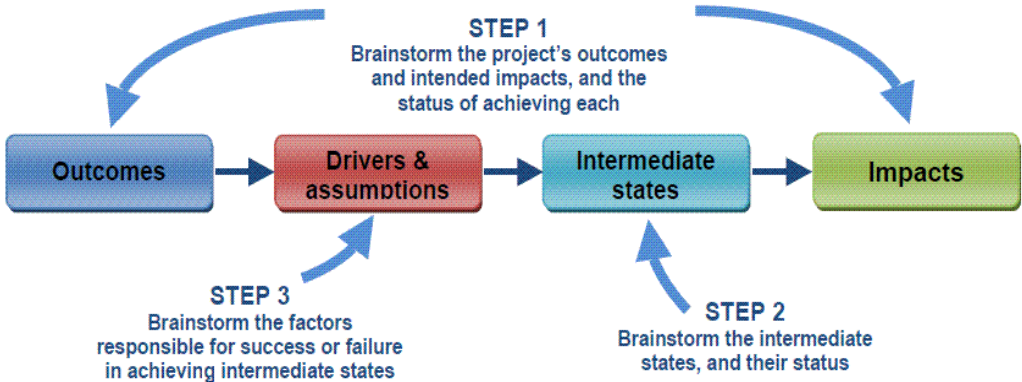
- Are there other causal pathways that would stem from the use of project outputs by other potential user groups?
- Is (each) impact pathway complete? Are there any missing intermediate states between project outcomes and impacts?
- Have the key impact drivers and assumptions been identified for each ‘step’ in the impact pathway.

Figure 3. A schematic ‘impact pathway’ showing intermediate states, assumptions and impact drivers (adapted from GEF EO 2009).



The process of identifying the impact pathways and specifying the impact drivers and assumptions can be done as a desk exercise by the evaluator or, preferably, as a group exercise, led by the evaluator with a cross-section of project stakeholders as part of an evaluation field mission or both. Ideally, the evaluator would have done a desk-based assessment of the project’s theory of change and then use this understanding to facilitate a group exercise. The group exercise is best done through collective discussions to develop a visual model of the impact pathways using a card exercise. The component elements (outputs, outcomes, impact drivers, assumptions intended impacts etc.) of the impact pathways are written on individual cards and arranged and discussed as a group activity. Figure 4 below shows the suggested sequence of the group discussions needed to develop the TOC for the project.

Figure 4. Suggested sequencing of group discussions (from GEF EO 2009)



Once the theory of change model for the project is complete the evaluator can assess the design of the project intervention and collate evidence that will inform judgments on the extent and effectiveness of implementation, through the evaluation process. Performance judgments are made always noting that project contexts can change and that adaptive management is required during project implementation.

The ROTI method requires ratings for outcomes achieved by the project and the progress made towards the ‘intermediate states’ at the time of the evaluation. According the GEF guidance on the method; *“The rating system is intended to recognize project preparation and conceptualization that considers its own assumptions, and that seeks to remove barriers to future scaling up and out. Projects that are a part of a long-term process need not at all be “penalized” for not achieving impacts in the lifetime of the project: the system recognizes projects’ forward thinking to eventual impacts, even if those impacts are eventually achieved by other partners and stakeholders, albeit with achievements based on present day, present project building blocks.”* For example, a project receiving an “AA” rating appears likely to deliver impacts, while for a project receiving a “DD” this would seem unlikely, due to low achievement in outcomes and the limited likelihood of achieving the intermediate states needed for eventual impact (see Table 1).

Table 1. Rating scale for outcomes and progress towards ‘intermediate states’

| Outcome Rating | Rating on progress toward Intermediate States |
|--|---|
| D: The project’s intended outcomes were not delivered | D: No measures taken to move towards intermediate states. |
| C: The project’s intended outcomes were delivered, but were not designed to feed into a continuing process after project funding | C: The measures designed to move towards intermediate states have started, but have not produced results. |
| B: The project’s intended outcomes were delivered, and were designed to feed into a continuing process, but with no prior allocation of responsibilities after project funding | B: The measures designed to move towards intermediate states have started and have produced results, which give no indication that they can progress towards the intended long term impact. |
| 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. | A: The measures designed to move towards intermediate states have started and have produced results, which clearly indicate that they can progress towards the intended long term impact. |

Thus a project will end up with a two letter rating e.g. AB, CD, BB etc. In addition the rating is give a ‘+’ notation if there is evidence of impacts accruing within the life of the project. The possible rating permutations are then translated onto the usual six point rating scale used in all UNEP project evaluations in the following way.

Table 2. Shows how the ratings for ‘achievement of outcomes’ and ‘progress towards intermediate states translate to ratings for the ‘Overall likelihood of impact achievement’ on a six point scale.

| Highly Likely | Likely | Moderately Likely | Moderately Unlikely | Unlikely | Highly Unlikely |
|-----------------------------------|------------------------|-------------------|---------------------|------------------|-----------------|
| AA AB BA CA BB+ CB+ DA+ DB+ | BB CB DA DB AC+ BC+ | AC BC CC+ DC+ | CC DC AD+ BD+ | AD BD CD+ DD+ | CD DD |

In addition, projects that achieve documented changes in environmental status during the project’s lifetime receive a positive impact rating, indicated by a “+”. The overall likelihood of achieving impacts is shown in Table 11 below (a + score above moves the double letter rating up one space in the 6-point scale).

The ROTI method provides a basis for comparisons across projects through application of a rating system that can indicate the expected impact. However it should be noted that whilst this will provide a relative scoring for all projects assessed, it does not imply that the results from projects can

necessarily be aggregated. Nevertheless, since the approach yields greater clarity in the ‘results metrics’ for a project, opportunities where aggregation of project results might be possible can more readily be identified.

| Results rating of project entitled: | | | | | | | |
|-------------------------------------|------------------------------|----------------|------------------------------|----------------|------------------------------|------------|---------|
| | | Rating (D – A) | | Rating (D – A) | | Rating (+) | Overall |
| Outputs | Outcomes | | Intermediary | | Impact (GEBs) | | |
| 1. | 1. | | 1. | | 1. | | |
| 2. | 2. | | 2. | | 2. | | |
| 3. | 3. | | 3. | | 3. | | |
| | Rating justification: | | Rating justification: | | Rating justification: | | |
| | | | | | | | |

Scoring Guidelines

The achievement of **Outputs** is largely assumed. Outputs are such concrete things as training courses held, numbers of persons trained, studies conducted, networks established, websites developed, and many others. Outputs reflect where and for what project funds were used. These were not rated: projects generally succeed in spending their funding.

Outcomes:

Outcomes, on the other hand, are the first level of intended results stemming from the outputs. Not so much the number of persons trained; but how many persons who then demonstrated that they had gained the intended knowledge or skills. Not a study conducted; but one that could change the evolution or development of the project. Not so much a network of NGOs established; but that the network showed potential for functioning as intended. A sound outcome might be genuinely improved strategic planning in SLM stemming from workshops, training courses, and networking.

Examples

Funds were spent, outputs were produced, but nothing in terms of outcomes was achieved. People attended training courses but there is no evidence of increased capacity. A website was developed, but no one used it. (Score – D)

Outcomes achieved but are dead ends; no forward linkages to intermediary stages in the future. People attended training courses, increased their capacities, but all left for other jobs shortly after; or were not given opportunities to apply their new skills. A website was developed and was used, but achieved little or nothing of what was intended because intended end users had no access to computers. People had meetings that led nowhere. Outcomes hypothesized or achieved, but either insignificant and/or *no evident linkages forward* to intermediary stages leading towards impacts. (Score – C)

Outcomes plus implicit linkages forward. Outcomes achieved and have *implicit forward linkages* to intermediary stages and impacts. Collaboration as evidenced by meetings and decisions made among a loose network is documented that should lead to better planning. Improved capacity is in place and should lead to desired intermediate outcomes. Providing implicit linkages to intermediary stages is probably the most common case when outcomes have been achieved. (Score - B)

Outcomes plus explicit linkages forward. Outcomes have *definite and explicit forward linkages* to intermediary stages and impacts. An alternative energy project may result in solar panels installed that reduced reliance on local wood fuels, with the outcome quantified in terms of reduced C emissions. Explicit forward linkages are easy to recognize in being concrete, but are relatively uncommon. (Score A)

Intermediary stages:

The **intermediate stage** indicates achievements that lead to Global Environmental Benefits, especially if the potential for scaling up is established.

“Outcomes” scored C or D. If the outcome above scored C or D, there is no need to continue forward to score intermediate stages given that achievement of such is then not possible.

In spite of outcomes and implicit linkages, and follow-up actions, the project dead-ends. Although outcomes achieved have *implicit forward linkages* to intermediary stages and impacts, the project dead-ends. Outcomes turn out to be insufficient to move the project towards intermediate stages and to the eventual achievement of GEBs. Collaboration as evidenced by meetings and among participants in a network never progresses further. The implicit linkage based on follow-up never materializes. Although outcomes involve, for example, further participation and discussion, such actions do not take the project forward towards intended intermediate impacts. People have fun getting together and talking more, but nothing, based on the implicit forwards linkages, actually eventuates. (Score = D)

The measures designed to move towards intermediate states have started, but have not produced result, barriers and/or unmet assumptions may still exist. In spite of sound outputs and in spite of explicit forward linkages, there is limited possibility of intermediary stage achievement due to barriers not removed or unmet assumptions. This may be the fate of several policy related, capacity building, and networking projects: people work together, but fail to develop a way forward towards concrete results, or fail to successfully address inherent barriers. The project may increase ground cover and or carbon stocks, may reduce grazing or GHG emissions; and may have project level recommendations regarding scaling up; but barrier removal or the addressing of fatal assumptions means that scaling up remains limited and unlikely to be achieved at larger scales. Barriers can be policy and institutional limitations; (mis-) assumptions may have to do with markets or public – private sector relationships. (Score = C)

Barriers and assumptions are successfully addressed. Intermediary stage(s) planned or conceived have feasible direct and explicit forward linkages to impact achievement; barriers and assumptions are successfully addressed. The project achieves measurable intermediate impacts, and works to scale up and out, but falls well short of scaling up to global levels such that achievement of GEBs still lies in doubt. (Score = B)

Scaling up and out over time is possible. Measurable intermediary stage impacts achieved, scaling up to global levels and the achievement of GEBs appears to be well in reach over time. (Score = A)

Impact: Actual changes in environmental status

“Intermediary stages” scored B to A.

Measurable impacts achieved at a globally significant level within the project life-span. .
(Score = ‘+’)

ANNEX II : ITINERARY OF ACTIVITIES OF THE TERMINAL EVALUATION MISSION

PE = Phillip Edwards (March/April)

AB = Abbas Balasem (September)

| Date | | Activities |
|------|------------------------|--|
| Mon | 22 nd March | pm: PE travel to Shiga, Japan . |
| Tue | 23 rd March | All day: Travel. Arrive evening. |
| Wed | 24 th March | All day: Meeting with Project Coordinator (Dr. Chizuru Aoki). |
| Thu | 25 th March | am: 1. Meeting with Project Coordinator (Dr. Chizuru Aoki). 2. Meeting with Chief of Freshwater Management Unit IETC (Mr. Vicente Santiago-Fandiño). pm: 1. Meeting with Programme Clerk (Ms. Aya Mimura). 2. Meeting with Project Coordinator (Dr. Chizuru Aoki). |
| Fri | 26 th March | am: 1. Meeting with Director ITEC (Mr. Takehiro Nakamura). pm: 1. Meeting with IT Technical Assistant IETC (Mr. Julien Lefort). 2. Meeting with Administrative Clerk IETC (Ms. Michiko Ota). |
| Sat | 27 th March | Free day. |
| Sun | 28 th March | Free day. |
| Mon | 29 th March | Free day. |
| Tue | 30 th March | All day: Travel to UK. Arrive evening. |
| | | |
| Tue | 6 th April | pm: Travel to Paris, France . |
| Wed | 7 th April | All day: Meeting with initial national consultant and teleconferences with Evaluation Office in Nairobi. |
| Thu | 8 th April | am: 1. Meeting with IT Manager DTIE (Mr. Robert Rodriguez). pm: 1. Meeting with IT Technical Assistant (Ms. Samira de Gobert). |
| Fri | 9 th April | am: 1. Meeting with Director DTIE (Ms. Sylvie Lemmet). pm: 1. Travel to UK. |
| | | |
| Sat | 4 th Sept. | AB travel to Baghdad |
| Sun | 5 th Sept. | am: 1. Meeting with Director-General Centre for Reconstruction of Iraqi Marshlands (CRIM) (Mr. Abdulkadhum Yassir) and some of his assistants. pm: 1. Meeting with former Director-General CRIM (Mr. Ali H. Kate). |
| Tue | 7 th Sept. | am: 1. Meeting with National Coordinator (Dr. Ali Al-Lami). 2. Meeting with Director, Information Technology Centre, MoE (Mr. Essa Alfayadh). pm: 1. Meeting with staff of Directorate of Technical Affairs and Department of Marshlands, MoE, Wazeria Site, Baghdad |
| | | |
| Mon | 13 th Sept. | am: 1. Travel to Al-Chibayish District, Thi-Qar Province. |
| Tue | 14 th Sept. | am: 1. Meeting with Consultant, Nature Iraq, Chibayish, and Thi-Qar (Mr. Jasim Al-Asadi). 2. Field visit to Al-Ghreej Pilot Project Site. 3. Field visit to the Sanitation Pilot Project site pm: 1. Meeting with local stakeholders at Al-Ghreej site. 2. Field visit to drinking water pilot projects in Kirmashiya, Badir Alrumayadg, and Al-Jeweber and meetings with the operators of these sites. 3. Meeting with the ex-Chairman of Thi-Qar Provincial Council (Mr. Ihsan T. Al-Taei). 4. Meeting with Director, Department of Environment, Thi-Qar (Mr. Raji N. Menshed). |
| Wed | 15 th Sept. | am: 1. Meeting with Director Marshlands Research Centre, Thi-Qar University (Dr. Talib Okab Hussain) and two of his assistants. pm: 1. Field visit to the Auda Marsh Wetland Restoration site (phytotechnology), Thi-Qar. 2. Field visit to solar stills, Thi-Qar. |
| Thu | 16 th Sept. | am: 1. Meeting with, Director-General, Southern Directorate of Environment, Basra (Taha |

| Date | | Activities |
|------|------------------------|--|
| | | Yaseen Mohammed). 2. Meeting with four of his assistants pm: 1. Visit to Marine Science Centre and meeting with four employees. 2. Visit to the Drinking Water Authority of Basra. 3. Meeting with Head of Rural Drinking Water Unit (Mr. Hameed Majed). 4. Meeting with ex-Vice-President, Basra University (Prof. Abdul-Redgha Akbar Alwan). 5. Meeting with Agricultural Advisor, Basra Provincial Council (Dr. Alaa Al-Badran). |
| Sat | 25 th Sept. | All day: Travel to Amara, Maysan Province. |
| Sun | 26 th Sept. | am: 1. Meeting with Head of Directorate of Environment, Maysan Province (Mr. Sameer Aboud) and some of his colleagues. pm: 1. Travel to Maymona District. 2. Field visit to Al-Hadam Drinking Water Pilot Project. 3. Field visit to Al-Sewelmat Drinking Water Pilot Project. |
| Mon | 27 th Sept. | All day: Travel to Baghdad |
| Tue | 28 th Sept. | am: 1. Meeting with Manger, Environmental Department, Directorate of Municipalities, Ministry of Municipalities and Public Works (MoMPW), Baghdad (Mr. Sadi Abdul-Sattar). pm: 1. Meeting with Deputy Director-General Directorate of Water, MoMPW (Mr. Mahmoud Abdul Sahib Ali). |

ANNEX III : PERSONS INTERVIEWED

Alphabetic order.

UNEP DTIE

| | |
|------------------|------------------------|
| Robert Rodriguez | IT Manager |
| Samira de Gobert | IT Technical Assistant |
| Sylvie Lemmet | Director |

UNEP IETC

| | |
|--------------------------|-------------------------------------|
| Aya Mimura | Programme Clerk |
| Chizuru Aoki | Project Coordinator |
| Julien Lefort | IT Technical Assistant |
| Michiko Ota | Administrative Clerk |
| Takehiro Nakamura | Director |
| Vicente Santiago-Fandiño | Chief of Freshwater Management Unit |

Ministry of Environment (MoE)

| | |
|-----------------------|--|
| Ali Al-Lami | National Coordinator (now Consultant to MoE) |
| Essa R. D. Alfayadh | Head, Information Technology Centre |
| Ghazwan B. Abd | Data Collection |
| Hazim A. Abd Aljaleel | (former) Head, Water Quality Section |
| Hussain Al-Asadi | Head, Department of Marshlands |

Ministry of Water Resources (MOWR)/ Centre for Reconstruction of Iraqi Marshlands (CRIM)

| | |
|-----------------------|---|
| Abdulkadhum L. Yassir | Director-General, CRIM |
| Alaa K. Shibeeb | Head, Planning Department |
| Ali H. Kataa | Director-General CRIM (former: 2004-2008) |
| Omar M. Abbas | IT |
| Rana Izudeen | Head, GIS Unit |
| Suray Abid Alhamid | Planning Section |

Ministry of Municipalities and Public Works (MoMPW)

| | |
|-------------------------|---------------------------------------|
| Mahmoud Abdul Sahib Ali | Deputy Director-General, Water Office |
| Sadi Abdul-Sattar | Head, Environmental Department |

Basra Province

| | |
|-------------------------|---|
| Abulredha Akbar Alwan | Deputy President, Basra University (former) |
| Alla H. Al-Badran | Agricultural Advisor, Basra Provincial Council |
| Ammal G. Y. Al-Saadi | Lecturer, Marine Science Centre |
| Ammar A. A. Mohammed | Environmental Engineer, Directorate of Environment |
| Fadia K. Radi | Marshlands Unit, Directorate of Environment |
| Hamid M. Kshaish | Head, Rural Areas Drinking Water Unit, Basra Drinking Water Authority |
| Kadhmia W. M. Al-Ghezzy | Marine Science Centre |
| Kharea A. Yaseen | Head, Department of Planning, Directorate of Environment |
| Luma J. Auber | Assistant Lecturer, Marine Science Centre |
| Murtada D. Naser | Lecturer, Marine Science Centre |
| Taha Y. Mohammed | Director General, Directorate of Environment |
| Wgwd A. A. Ali | Programmer, Directorate of Environment |

Missan Province

| | |
|-----------------------|--|
| Abbas Abul Hassan | Guard, Al-Sewelmat Drinking Water Station |
| Alaa J. Mohammed | Biologist, Missan Environmental Department |
| Aqeel H. Al-Mayahi | Chemist, Unit of Drinking Water, Missan Drinking Water Authority |
| Aqel L. Mohammed | Head, Planning Unit, Drinking Water Authority of Missan |
| Chasb K. Al-Hajaj | Head, Marshlands Committee and Member of Missan Provincial Council |
| Mohammed Sayed Hafidh | Engineer, ESTIS Unit, Missan Environmental Department (interviewed by phone) |
| Raheef Shather | Operator, Al-Hdam Drinking Water Station |
| Sameer Aboud | Head, Missan Environmental Department |

Thi-Qar Province

| | |
|--------------------------|--|
| Acid Khutar | Operator, Al-Kirmashiya Water Station |
| Ahmad Hassan | Head, Drinking Water Authority, Thi-Qar (interviewed by telephone) |
| Ahmad R. Mohammed | Engineer, Department Environment (Thi-Qar MoE) |
| Ali Talib Hashim | Assistant Head, Department Environment (Thi-Qar MoE) |
| Falah Kareem Hadi | Researcher, Marshlands Research Centre |
| Ihsan Talib Al-Taei | Chairman of Provincial Council (former) |
| Jasim Abu-Alheel | Operator, Al-Jeweber Water Station |
| Jassim M. Al-Asadi | Engineer, Nature Iraq (local NGO) |
| Madhlum Jasim Mohamed | Resident, Um Al-Wadie Village (solar stills were installed in his house) |
| Mohammad H. Ibrahim | Assistant Head, Marshlands Research Centre |
| Raji N. Menshed | Head, Department Environment (Thi-Qar MoE) |
| Samad Jalood | Resident, Al-Ghreej village |
| Talib Okab Hussien | Head, Marshland Research Centre, Thi-Qar University |
| Wathiq N. Alasaidi | Operator, Al-Ghreej Water Station |
| <i>Name not recorded</i> | Operator, Badir Al-Rumaidh Water Station |

ANNEX IV: PHOTOGRAPHS FROM DEMONSTRATION SITES

| | |
|---|--|
|  |  |
| <p>Photo 1 : Al-Ghreej Drinking Water Station, Thi-Qar Province (All photos Sept 2010 unless stated)</p> | <p>Photo 2 : Badir Al-Rumaidh Drinking Water Station, Thi-Qar Province (March 2010)</p> |
|  |  |
| <p>Photo 3: Badir Al-Rumaidh Drinking Water Station, Thi-Qar Province (Sept. 2010)</p> | <p>Photo 4 : Al-Kirmashiya Drinking Water Station, Thi-Qar Province</p> |
|  |  |
| <p>Photo 5 : Dry canal which was designed to carry the domestic waste to the planted area</p> | <p>Photo 6 : The pilot sanitation project. The planted area is dry and the fence is damaged</p> |
|  |  |
| <p>Photo 7 : The current dry condition of Auda Marsh</p> | <p>Photo 8 : Solar stills at a house in Um Aluadee village, Thi-Qar Province</p> |

| | |
|---|--|
|  | <p style="text-align: center;">Qar Province</p>  |
| <p>Photo 9 : Al-Hadam Drinking Water Station in Missan Province</p> | <p>Photo 10 : Inside view of Al-Hadam Drinking Water Station, Missan Province.</p> |
|  |  |
| <p>Photo 11 : Damaged network at Al-Hadam Drinking Water Station, Missan Province</p> | <p>Photo 12 : Al-Sewelmat Drinking Water Station, Missan Province showing overground distribution pipe network</p> |
|  |  |
| <p>Photo 13 : Al-Sewelmat Drinking Water Station, Missan Province showing overground distribution pipe network</p> | <p>Photo 14 : Start of the underground distribution pipe network at Al-Hadam Drinking Water Station, Missan Province</p> |
|  |  |
| <p>Photo 15 : Dry water intake of Al-Sewelmat Drinking Water Station, Missan Province</p> | <p>Photo 16 : Delivery of diesel to drinking water unit at Al Kirmashiya (March 2010)</p> |

ANNEX V: EVALUATION QUESTIONNAIRES AND RESULTS

Four sets of questionnaires were produced for the evaluation. These are reproduced below. These were distributed as hard and soft copies to a number of focal points as per Table 1 with each focal point promising to distribute them to ten people with whom they still had contact. Some people could be asked for responses to more than one type of questionnaire. The focal points are identified in Table 2. Many of the individuals interviewed were administrators and/or person trained, and some of them are supervising many workers related to the Marshlands Project in administrative capacity and/or who were trained by the Project. As a result, some of these were selected as "focal points" to whom electronic copies (and some hard copies) of the questionnaires for administrators and person trained were delivered. For the two other types of questionnaires, namely village headmen and women trained on environmental and health issues, these were delivered locally (Basra, Thi-Qar and Missan) to NGOs and to the Directors of the Departments interviewed, to be distributed by them.

Unfortunately, as of 31st December 2010, very few responses had been received – far too few for any meaningful insights to be made. The only significant number returned were of the questionnaire for women, but of the 19 returned, 15 came through the intermediary of one of the NGOs whose independence and motives were subsequently found to be highly questionable. The other four were incomplete. Therefore, all 19 responses were ignored.

TABLE 1: NUMBER AND TYPES OF QUESTIONNAIRES SENT OUT

| Questionnaire | Number sent out (hard and electronic copies) | Number received back (through any means) |
|-----------------|--|--|
| Administrators | 12 focal points | 3 |
| Persons trained | 12 focal points | 1 |
| Village headmen | 10 focal points | 1 |
| women | 10 focal points | 19 |

TABLE 2: TYPE AND NUMBER OF FOCAL POINTS

| Authorities | Number of focal points | Description |
|---|------------------------|---|
| Ministry of Environment, HQ | 2 | Head, Dept of Marshlands Director, Info. Tech. Center |
| Ministry of Water Resources, HQ | 2 | D.G, CRIM, MOWR Former D.G, , CRIM, MOWR |
| Ministry of Municipalities and Public Works, HQ | 1 | Deputy D.G. Drinking Water Office |
| Missan Governorate | 3 | Head, Dept of Environment Head, Dept. Water authority NGO (Chairman: Mohammed Alibadi) |
| Thi-Qar Governorate | 4 | Head, environmental Dept. Director, Marshlands Res. Cen. (University) Head, Water Authority NGO,(Chairman: Abbas Omar Shareef) |
| Basra Governorate | 3 | DG, Directorate of Environment, South Head, Water authority NGO (Dr. Kadhemia Waly Mansour Al-Ghezzy) |
| Total Number of the Focal points | 15 | |

For government administrators/technical managers:

- 1) **Has the project affected *your* perception of the *environmental* importance of the marshes?**
 - a) Greatly increased it
 - b) Somewhat increased it
 - c) Made no difference
 - d) Somewhat decreased it
 - e) Greatly decreased it.
 - f) Don't know

- 2) **Has the project affected the perception of *your work colleagues* as to the *environmental* importance of the marshes?**
 - a) Greatly increased it
 - b) Somewhat increased it
 - c) Made no difference
 - d) Somewhat decreased it
 - e) Greatly decreased it.
 - f) Don't know

- 3) **Has the project affected *your* perception of the *cultural* importance of the marshes?**
 - a) Greatly increased it
 - b) Somewhat increased it
 - c) Made no difference
 - d) Somewhat decreased it
 - e) Greatly decreased it.
 - f) Don't know

- 4) **Has the project affected the perception of *your work colleagues* as to the *cultural* importance of the marshes?**
 - a) Greatly increased it
 - b) Somewhat increased it
 - c) Made no difference
 - d) Somewhat decreased it
 - e) Greatly decreased it.
 - f) Don't know

- 5) **How has the project performed in delivering your expectations?**
 - a) Exceeded my expectations
 - b) Met all of my expectations
 - c) Met most of my expectations
 - d) Met only a few of my expectations
 - e) Not met any of my expectations

Do you wish to comment further?

- 6) **In your opinion, will the results of the project encourage people to return to their traditional way of life in the marshes?**
 - a) Greatly encourage people to return to the marshes
 - b) Encourage some people to return to the marshes
 - c) Have no effect on people's decision to return to the marshes
 - d) Discourage people to return to the marshes
 - e) Greatly discourage people to return to the marshes
 - f) Don't know

Why do you think that?

7) Do you think the improvements [drinking water unit/sewage system etc.] that the project has provided will still be operating efficiently in 5 years time?

- a) Highly sustainable – yes, they will still be fully operating in 5 years time
- b) Moderately sustainable – yes, they will be operating some of the time in 5 years time
- c) Neutral – I have no view as to whether they will be operating or not
- d) Moderately unsustainable – no, they will rarely be operating in 5 years time
- e) Highly unsustainable – no, they will not be operating at all in 5 years time
- f) Don't know

Can you say why?

8) In your opinion, will the Marshlands Information Network help in managing the Iraqi marshes?

- a) Very much
- b) Quite a lot
- c) Only a little
- d) Not at all
- e) Don't know

Can you say why?

9) In your opinion, will the Iraqi Marshlands Observation System help in managing the Iraqi marshes?

- a) Very much
- b) Quite a lot
- c) Only a little
- d) Not at all
- e) Don't know

Can you say why?

10) In your opinion, was the International Workshop on Iraqi Marshlands Management helpful in the future management of the Iraqi marshes?

- a) Very much
- b) Quite a lot
- c) Only a little
- d) Not at all
- e) Don't know

Can you say why?

11) Do you think that the environmentally sustainable technologies (ESTs) piloted by the project will be able to be replicated widely in the Iraqi marshes?

- a) Yes, widely
- b) Yes, but over a limited area
- c) Maybe, but I have doubts
- d) Possibly but there are likely to be limitations
- e) No, not at all
- f) Don't know

Can you say why?

12) Do you think that replication of the ESTs piloted by the project will be financed adequately by the Iraq Government?

- a) Yes, wide replication of ESTs in the Iraqi marshes will be financed by the Iraq Government
- b) Yes, some replication of ESTs in the Iraqi marshes will be financed by the Iraq Government

- c) Possibly a little replication of ESTs in the Iraqi marshes will be financed by the Iraq Government
- d) No, no further finance will be provided for replication of ESTs in the Iraqi marshes by the Iraq Government
- e) Don't know

Can you comment further?

13) Do you think that if finance is available, replication of the ESTs piloted by the project is institutionally feasible?

- a) Yes, Iraq's institutions are capable of supporting wide replication of ESTs in the Iraqi marshes
- b) Yes, but Iraq's institutions are capable of supporting only limited replication of ESTs in the Iraqi marshes
- c) Possibly, but Iraq's institutions will require more external help with capacity building to replicate ESTs in the Iraqi marshes
- d) No, Iraq's institutions are not capable of supporting replication of ESTs in the Iraqi marshes
- e) Don't know

Can you comment further?

14) Do you think that if finance is available, replication of the ESTs piloted by the project would be socially acceptable?

- a) High – replication of ESTs in the Iraqi marshes would have strong social support from local people
- b) Moderate – replication of ESTs in the Iraqi marshes would have some social support from local people
- c) Little – replication of ESTs in the Iraqi marshes would generally be regarded with indifference by local people
- d) Low – replication of ESTs in the Iraqi marshes would be opposed by the local people
- e) Don't know

Can you comment further?

For persons who have received training from the project:

1) In what year(s) did you receive training?

2) Was the relevance of the training that you received:

- a) Very high
- b) High
- c) Moderate
- d) Low
- e) Very low
- f) Don't know

Do you wish to comment further?

3) Was the quality of the training that you received:

- a) Very high
- b) High
- c) Moderate
- d) Low
- e) Very low
- f) Don't know

Do you wish to comment further?

4) Has the training you received helped you in your work concerning the Iraq marshes?

- a) Very much
- b) Much
- c) A little
- d) Not at all
- e) Don't know
- f) Not applicable – I no longer work on aspects of the Iraq marshes

Do you wish to comment further?

5) Do you still make use of the training that you received in your work in the Iraq marshes?

- a) Very often – every few days
- b) Often – at least once a week
- c) Occasionally – once a month
- d) Infrequently – once every few months
- e) Not at all
- f) Don't know
- g) Not applicable – I no longer work on aspects of the Iraq marshes

Do you wish to comment further?

6) Do you make any use of the training manuals published by the project in your work in the Iraq marshes?

- a) Very often – at least once a week
- b) Often – once a month
- c) Occasionally – once every 3-6 months
- d) Infrequently – once a year
- e) Not at all
- f) Don't know
- g) Not applicable – I no longer work on aspects of the Iraq marshes

Do you wish to comment further?

7) Are you using, or do you plan to use, the training manuals outside of the scope of the Iraq marshes?

- a) Yes
- b) No

If yes, please describe these briefly

8) Is the relevance and quality of the training manuals published by the project:

- a) Very high
- b) High
- c) Moderate
- d) Low
- e) Very low
- f) Don't know

Do you wish to comment further?

9) Are there aspects of the training framework that are missing or need further improvement?

- a) Yes
- b) No

If yes, please describe these briefly

10) Is the guidance you have received on the use of the training manuals:

- a) Very good
- b) Good
- c) Moderate
- d) Poor
- e) Very poor
- f) I have not received any guidance on their use

Do you wish to comment further?

11) Are you communicating or networking more with other organizations/individuals involved in the management and conservation of the Iraq marshes as a result of the project ?

- a) Very much
- b) Much
- c) A little
- d) No change
- e) Less
- f) Don't know

Do you wish to comment further?

For villagers/headmen:

1) What was your stance to the project at the outset?

- a) Fully supportive – the project promised to deliver the things most important to me or my family
- b) Partly supportive – the project promised to deliver some things that were important to me or my family
- c) Neutral – the project promised to deliver things that were of no relevance to me or my family's needs
- d) Unsupportive – the project promised to deliver things that I or my family thought were unimportant
- e) Objected – the project promised to deliver things that caused me or my family harm or loss.

2) What is your stance now the project has finished?

- a) Fully supportive – the project has delivered the things most important to me or my family
- b) Partly supportive – the project has delivered some things that were important to me or my family
- c) Neutral – the project delivered things that were of no relevance to me or my family's needs
- d) Unsupportive – the project has delivered things that I or my family believe are unimportant
- e) Unhappy – the project's delivery has resulted in harm or loss to me or my family.

If d or e – can you explain why?

3) How has the project performed in delivering your expectations?

- a) Exceeded my expectations
- b) Met all of my expectations
- c) Met most of my expectations
- d) Met only a few of my expectations
- e) Not met any of my expectations

Do you wish to comment further?

4) Have the results of the project affected the quality of your/your family's life?

- a) Greatly improved the quality of life
- b) Somewhat improved the quality of life

- c) Had no effect on the quality of life
- d) Somewhat decreased the quality of life
- e) Greatly decreased the quality of life

If d or e – can you say why?

5) In your opinion, will the results of the project encourage people to return to their traditional way of life in the marshes?

- a) Greatly encourage people to return to the marshes
- b) Encourage some people to return to the marshes
- c) Have no effect on people's decision to return to the marshes
- d) Discourage people to return to the marshes
- e) Greatly discourage people to return to the marshes

Why do you think that?

6) Do you think the improvements [*drinking water unit/sewage system etc.*] that the project has provided will still be operating efficiently in 5 years time?

- a) Highly sustainable – yes, they will still be fully operating in 5 years time
- b) Moderately sustainable – yes, they will be operating some of the time in 5 years time
- c) Neutral – I have no view as to whether they will be operating or not
- d) Moderately unsustainable – no, they will rarely be operating in 5 years time
- e) Highly unsustainable – no, they will not be operating at all in 5 years time

If d or e – can you say why?

7) As a result of the project, how has your awareness of personal hygiene changed?

- a) My/my family's awareness has greatly increased
- b) My/my family's awareness has somewhat increased
- c) My/my family's awareness has not changed

If a or b – can you provide an example?

8) As a result of the project, how has your awareness of environmental conservation changed?

- a) My/my family's awareness has greatly increased
- b) My/my family's awareness has somewhat increased
- c) My/my family's awareness has not changed

If a or b – can you provide an example?

For Women Receiving Local Training on Raising Awareness on Environmental and Health Issues

1) In what year(s) did you receive training?

2004, 2005, 2006, 2007, 2008, 2009

2) Was the relevance of the training that you received (to Environmental and Health issues):

- a) Very high
- b) High
- c) Moderate
- d) Low
- e) Very low
- f) Don't know

Do you wish to comment further?

3) Was the quality of the training that you received:

- a) Very high
- b) High
- c) Moderate
- d) Low
- e) Very low
- f) Don't know

Do you wish to comment further?

4) Has the training you received helped you getting valuable information?

- a) Very much
- b) Much
- c) A little
- d) Not at all
- e) Don't know
- f) Not applicable – I no longer work on aspects of the Iraq marshes

Do you wish to comment further?

5) Do you still make use of the training that you received in your home?

- a) Very often – every few days
- b) Often – at least once a week
- c) Occasionally – once a month
- d) Infrequently – once every few months
- e) Not at all
- f) Don't know
- g) Not applicable – I no longer work on aspects of the Iraq marshes

Do you wish to comment further?

6) Do you make any use of the training manuals published by the project in your daily life?

- a) Very often – at least once a week
- b) Often – once a month
- c) Occasionally – once every 3-6 months
- d) Infrequently – once a year
- e) Not at all
- f) Don't know
- g) Not applicable – I no longer work on aspects of the Iraq marshes

Do you wish to comment further?

7) Is the relevance and quality of the training manuals published by the project:

- a) Very high
- b) High
- c) Moderate
- d) Low
- e) Very low
- f) Don't know

Do you wish to comment further?

8) Are there aspects of the training framework that are missing or need further improvement?

- a) Yes
- b) No

If yes, please describe these briefly

ANNEX VI: BRIEF CV OF EVALUATORS

Phillip Edwards is an ecological and environmental consultant with 26 years' experience in both the private and international development sectors whose clients include the world's major development agencies (World Bank, UNDP, UNEP, UNIDO, IFAD, ADB), international conservation organisations (IUCN, Wetlands International), and private companies (e.g. British Petroleum). He is a specialist in strategic conservation planning, project/programme planning and evaluation, particularly those involving biodiversity and protected area management, sustainable land management issues, as well as in environmental impact assessment of industrial and development projects. He has wide international experience having visited 82 countries and worked in 40. He obtained a first class honours degree in zoology from the University of Wales and a doctorate in ornithology from the Edward Grey Institute for Field Ornithology, Oxford University. He was elected a Fellow of the Institute of Ecology and Environmental Management (UK) in 1997 in recognition of an outstanding contribution to the practice of ecology and environmental management.

Abbas Balasem is a senior civil servant with 34 years' experience undertaking scientific research with the Directorate of the Agricultural and Biological Researches as well as the Directorate of Radiation Protection of ex- Iraqi Atomic Energy Commission between 1975 and 2003. He has also worked for the Ministry of Science and Technology and the Ministry of Environment in Iraq. He worked as the National Coordinator of the project entitled "*Local Area Development Programme*" sponsored by the EU and SIDA and implemented by seven UN agencies including UNDP, WHO, UNESCO, ILO and others. He has worked as a Team Leader or National Evaluator on several evaluations for UNDP or UNEP. He obtained his first degree in Veterinary Medicine from University of Baghdad in 1975 and a Doctorate in Radiation Biology (Cytogenetic) from the Department. of Haematological Medicine, Cambridge Clinical School, University of Cambridge, UK in 1984. He has supervised 16 postgraduate students toward their PhD or M.Sc degrees in Iraqi universities.

ANNEX VII: PROJECT COMMENTS ON THE EVALUATION FINDINGS

| Current description | Response |
|---|---|
| <p>[para 91]yet its use had not been successfully employed for the treatment of sewage.</p> <p>.....the techniques seems to be used only under narrow transitory band of environmental conditions</p> | <p><u>Project:</u> It should be clarified phytotechnology is not for sewage treatment in densely populated areas or for highly contaminated effluent, rather for less populated areas or environmentally sensitive places. We do not insist that phytotechnology is a silver bullet to solve all problems. Also we think a “narrow transitory band of environmental conditions” are sort of all stakeholders’ intervention targets in terms of restoration of the Marshes, and if so, testing applicable technology under such a desirable condition does not lead to reduce its relevance although we shall have make an effort to find other applicable alternatives such as self-compositing or solar-driven nano-filtering for other conditions.</p> |
| | <p><u>Consultant:</u> Respectfully, I disagree. Nowhere is the idea of the use of phytotechnology in <i>densely-populated</i> areas raised. The point being made is that the use of phytotechnology for treating sewage was already known in Iraq and yet had not been adopted there. Perhaps the Project should have looked at why this was so, before it demonstrated it again. This it did not appear to do. Furthermore, its use under “<i>only a narrow transitory band of environmental conditions</i>” does not apply to all intervention targets. In this case we are talking about houses that are not on the islands in the marshes, nor too far away from the marshes as to have no water; so let’s call this for ease the “edge of the marshes”. Given the dynamic (“<i>transitory</i>”) nature of the edge of the marshes – i.e. the edge moves through the seasons and in response to the re-flooding/drought, the relevance of building constructed wetlands seems unlikely to be effective in terms of its objective or in terms of cost. As such, demonstrating a technology that may have little practical use on the ground seems to the TET to have little relevance. Perhaps if the Project had looked at the reasons behind why the technology had not been widely adopted first, they might have learned something; and efforts to find (and demonstrate) other alternatives may have proved more useful. I also refer you to the revised text of paragraph 17 which would seem relevant “<i>A more comprehensive range of demonstrations across a single issue, e.g. water provision or sanitation, allowing the Iraqis to view a number of alternatives in action and to select for themselves which to move forward with, might have resulted in greater uptake</i>”.</p> |
| <p>[para 92]</p> | <p><u>Project:</u> Application of phytotechnology sanitation components in this project has two aims. The first one is, as the project primarily targeted at the local residents, is to improve their sanitation. The second one is to raise awareness of local residents on the ecological function, water purifying function in this case, of the surrounding environment through wetland restoration pilot testing. In terms of environmental sustainability of the Marshes participatory approach involving the indigenous people for its management is required. The TET raised a</p> |

| Current description | Response |
|---------------------|--|
| | <p>question on the effectiveness of the micro scale demonstrating site and water quality monitoring there, but without testing at the measurable scale, we could not have any implication of its efficiency, and it would be impossible to demonstrate the ecosystem service function of the Marshlands to people, and to evaluate the overall values that the Marsh ecosystem provides for water purification function.</p> <p>In this regard, the TET’s question of implementing small-scale pilot project for wetland restoration should not be evaluated in comparison with the natural recovery of the marshes as described in the draft, but in terms of environmentally sustainable options for human settlements, in this case for sanitation, within the Marshes, ultimately to raise awareness of the local resident.</p> <p>In addition, we believe that to increase the international recognition on the global importance of the Marshes, in particular for better understanding among neighboring countries for water inflow, it is necessary to appeal at the national and the international level with regard to the strong willingness of local resident to protect their environment, which goes beyond necessity only for food of the Marsh Arabs. Promotion of phytotechnology options can contribute to raise awareness among people.</p> |
| | <p><u>Consultant:</u> Again, respectfully, I disagree. The evaluation was led to believe that the small site at Al-Jeweber was to demonstrate a construction approach to wetland restoration as opposed to a natural approach at Auda Marsh. The reason for this was to deal with contaminated inflows (at Al-Jeweber from the Main Drain); nothing to do with sewage or local people’s water purification. DTIE raises the issue of measuring its efficiency – one does not have to do this; there is a huge body of literature already in the public domain showing that the technology is very efficient. While we understand that it is important that local indigenous people understand that the reedbeds that grow all around them (and have done for millennia) are important in keeping their water clean, we cannot believe that constructing 500m² of reed bed and measuring levels of contaminants is going to achieve this. With respect to the local people, it is unlikely that they will understand from the demonstration what is being measured, what is doing the measuring, how the measurements are being made, or what the results/chemicals/measuring units mean. Most of my neighbours in my village would not, and many of them have a non-scientific university education. I believe that this entire comment is largely irrelevant to the issues as they were discussed during interviews and adds nothing which can meaningfully be incorporated into to the paragraph.</p> <p>Furthermore, while we are grateful to Mr. Fukuhara for the information he supplied in the form of the Main Drain Wetland Report, there is nothing contained therein that is contrary to our basic argument in the text, namely that the pilot project did not demonstrate anything not already known to the Iraqis. While point 6 of the Executive Summary is noted (i.e. that the</p> |

| Current description | Response |
|---------------------|---|
| | <p>monitoring showed the poor quality of the water of the Main Drain), this could have been achieved simply by taking water samples; it did not require phytotechnology to reach this conclusion. Also point 8 is ambiguous since while it finishes by recommending phytotechnology as a means of improving water quality if Main Drain water needs to be released, the sentence before says “<i>the results of the pilot activities <u>may</u> be useful to inform policy making and to find suitable Environmentally Sound Technology (EST)Options</i>” [consultant’s emphasis] which is hardly a ringing endorsement of the Project’s efforts and does not preclude that the recommendation is based upon other work done by, or known to, the Iraqi’s. This argument has been inserted into paragraph 93.</p> |

Further comments received from the project after the first consultation period

| Current description | Response |
|---|--|
| <p>(para75) <i>...“The design of Phase I did not contain any monitoring and evaluation (M&E) plan nor any budget allocation for M&E, nor did it make any overt reference to M&E in any part of the text, ...”</i></p> | <p><u>Project:</u> This is not correct, as there were indeed references to M&E in the Phase I project document. It included specific roles for the PIU, MIN, and local/international consultants in the monitoring and evaluation functions. A monitoring system that utilized these roles was indeed put into place and implemented, with progress monitoring, internal activity monitoring, as well as impact assessments.</p> |
| <p>(para81) <i>“The design of Phase I did not contain...any budget allocation for M&E.”</i></p> | <p><u>Project:</u> This is not correct, as Phase I did make cost allocations for M&E. For Phase I, the Trust Fund rules indicated that Agency Management cost was to include monitoring and reporting costs. UNEP did follow these rules and allocated US\$20,000 from Phase I, along with additional \$30,000 combined from Phases II-A, II-B, and III. The combined M&E allocations from various phases exceeded the UNEP guidelines significantly.</p> |
| <p>(para83) <i>.....yet significant support could have been provided through the UN brokering negotiations with upstream countries (Syria and Turkey) to provide increased release of water at peak flood times to both provide the volume of water necessary to re-flood large areas of the marshes,</i></p> <p><i>.....While DTIE believe that the UN system is not in a position to broker transboundary water negotiation among riparian countries unless all parties want the UN or other third parties to intervene, citing Turkey’s rejection to ratify the 1997 UN Convention on International Water Courses for Non-navigational Use (one of the legal instruments to</i></p> | <p><u>Project:</u> It is not something DTIE believes, but it is a common sense widely shared in the UN water community that the UN should not intervene in the Track 1 (political/diplomatic track) on water negotiation although the UN should facilitate the Track 2 (technical cooperation track). Such rhetoric gives an impression that only DTIE thinks we should not broker. In this regard, the said official letter from the Iraqi Government to the OSG clearly requested the UN to intervene to the Track 1, which is most unlikely to happen.</p> <p>We never heard the case of the Ramsar Convention is applied to settle down the international water dispute. It might be applied to discuss the situation of a transboundary Ramsar site (however, Al-Huwaizah marsh is not designated as a transboundary site with Iran), but it is most probably not be effective for the upstream water development thousand kilometers away from the site. Recently, the Ramsar Convention sent the advisory mission to settle the terrestrial disputes in relation to the Ramsar sites between Costa Rica and Nicaragua, but the Ramsar Secretariat clearly</p> |

| | |
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| <p><i>settle the international water dispute) as an example, Turkey has ratified the Ramsar Convention in 1994, Syria in 1998, and Iraq in 2008, so this may prove to be a more fertile approach.</i></p> | <p>mentioned "The Secretariat stressed to both Costa Rica and Nicaragua that it could not advise or adjudicate upon any political issues between Contracting Parties". In addition, according to our recent communication with the Ramsar Secretariat, they contacted with focal points of neighboring countries, and then they have found difficulties to broker on international water sharing issues.</p> <p>Trilateral parties' water negotiation had halted since early 90's because of the political situation. From 2004 to 2006 until the official negotiation resumed, UNESCO organized the informal meetings and joint training sessions to facilitate the technical dialogue among riparian countries. The Joint Technical Committee as well as some ministerial meetings were held regularly since 2006, but those official/diplomatic meetings were in principal confidential due to its political sensitivity. There might be chances for all parties to agree in those meetings to invite the third parties' assistance for brokering, but it did not happen. Therefore, we do not agree that the TET concluded "<i>there was a possible opportunity in 2003 to explore the international option which was never taken (para 99)</i>", Even if there was an opportunity, it was very narrow. Also we would like to point out that in order to have such a sensitive negotiation for the long-standing water issues, the parties had to wait for the real government was established in Iraq, not CPA-led and the interim one. The TET should review the chronology of water negotiation since 2003 and do the political situation analysis before concluding as such.</p> <p>Thus, we disagree that the TET's views on the role of UN in the international water negotiation as it is against the principle and ignoring the political reality. we also disagree that the Ramsar Convention is recommended by the TET as a tool for facilitation on water sharing in the Tigris and Euphrates basin. Combination of MEAs' obligations of the Contracting Parties may be useful to promote mutual understanding on the water and environmental situation in the region through a joint research/programme , to increase the international importance of the Marshes (as the current UNEP-UNESCO project is addressing), but picking up the Ramsar Convention to facilitate the international water sharing is unrealistic as a recommendation for the Project evaluation. Our recent communication with the Ramsar secretariat also implies it is quite difficult for the Ramsar Secretariat to deal with water sharing issues directly among Parties are quite difficult. Please reconsider.</p> |
| <p><i>(Para 98) Both Syria and the former Iraqi regime have complained about reduced water supplies from Turkey since the completion of the first Turkish dams at the beginning of the 1990s, and another 22 dams are either underway or complete on the Tigris and Euphrates rivers, including the Ilisu Dam.</i></p> | <p><u>Project:</u> The Ilisu dam is controversial not for its water storage but for the submergence of the Kurdish historical sites. The Ilisu dam is purely for the hydropower generation purpose to return water to the mainstream, so emphasizing the Ilisu dam in this context is misleading. In addition, during one of the above ministerial meeting, the Iraqi side endorsed the construction of the Ilisu dam with a condition that the same amount of water discharge to the downstream was secured. So the TET should be careful to avoid such rhetoric as if the Ilisu is being constructed without any consultation with neighboring countries. It does not help for the further negotiation among the parties.</p> |

| | |
|---|---|
| <p><i>(Para 99) DTIE stresses a different viewpoint, focussing on internal rather than external factors.</i></p> | <p><u>Project:</u> We disagree. We emphasized the internal factors to have a comprehensive understanding on the causes and effects since the internal factors were ignored in the previous draft report. For instance, the TET does not refer to the fact that there is no water sharing agreement between the Kurdistan Regional Government and the central government in Baghdad; the Dokan and Darbandikan Dams are now under the control of the KRG, which affected the downstream water situation during the drought of 2008-2009. So it should be avoided to say like DTIE is evasive. In addition, as we pointed out before that the diminishing marshes was foreseen if Iraq had completed their National Water Master Plan of 1982 regardless of the GAP project. Internal/domestic factors and external factors should be described and analyzed in balance, otherwise the wrong message would be conveyed to Iraqis that water should be released anyway before they make efforts in improving their own water management practices.</p> |
| <p><i>(Para 100) With the works in the Plan due to be completed in 2011, it is hard to see that the target will be achieved merely by completing the Plan;</i></p> | <p><u>Project:</u> I may be wrong, the project outcomes and the MOWR plan's achievability in 2011 are relevant but does not connect in terms of rating the Project Sustainability. The set target of the timing and geographical coverage of the Marshlands restoration are in question since such target are not set by the overall water scenario analysis, so the feasibility of this target must be primarily examined.</p> |
| <p><i>(Para 100) the sustainability of those parts of the Project that remain working, remain highly dependent upon the quantity of water reaching the area from outside of Iraq.</i></p> | <p><u>Project:</u> The commentator disagrees that the course of discussion on water availability, coming down to such conclusion. If the environmental sustainability of the Project is questioned, this should be because the Project did not address the international water disputes, but because few efforts/less success was made to advocate the increase of water to the Marshlands from domestically available water resources. For instance, the Iraqi Government appealed the importance of the Marshes to the UN, but some new irrigation project and dam projects are there. The TET should not leave the current situation saying "remain highly dependent.....outside of Iraq". The future of protecting the Marshes also relies on reducing the dependency of external waters/uncertainty as much as possible through improvement of water use efficiency on domestic water resources. Under the political reality, Iraqis could not succeed with upstream neighbors in water negotiation without such efforts (Iraq's efforts could be a prerequisite for further water sharing negotiation). It seems the TET's views just accept the Iraq government's standpoint rather than encouraging their internal efforts. This is not seen as constructive.</p> |
| <p><i>(para 100) Since UNEP deems each risk dimension of sustainability critical, the overall rating for sustainability cannot be higher than the rating of the dimension with lowest rating, and as such <u>the overall sustainability is ranked as Moderately Unlikely.</u></i></p> | <p><u>Project:</u> In the discussion of this rating, we agree it is so vulnerable to ensure the Environmental Sustainability of the Project, namely the destiny of the Marshes themselves. That is why we have launched the new joint project to fill gaps. If there is no follow-up project, we may have to accept this rating. But the TET's view seems our efforts to launch the new project do not contribute any to the Environmental Sustainability of this Project since there is no reference to the new project and its potential transition from the short-term to the long-term in this section. We would like to know how the TET thinks of this point.</p> |