

ケニア共和国
ナクル地域における環境管理能力向上
プロジェクト
終了時評価報告書

平成 20 年 12 月
(2008 年)

独立行政法人国際協力機構
ケニア事務所

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JR
08-007

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序 文

日本国政府はケニア共和国政府からの技術協力要請に基づき、2005年2月14日から4カ年にわたる技術協力プロジェクト「ケニア共和国ナクル地域における環境管理能力向上プロジェクト」を開始しました。

今般、独立行政法人国際協力機構はプロジェクトの終了時評価を行うことを目的として、2008年11月11日から11月27日までJICAケニア事務所長 高橋嘉行を団長として、ケニア共和国側と合同でプロジェクトの終了時評価を行いました。

調査団は、ケニア共和国政府関係者と、プロジェクトの進捗の確認と今後の方向性に関する協議及びプロジェクト・サイトでの現地調査を実施しました。

本報告書は、同調査団の調査・評価結果を取りまとめたものであり、今後のプロジェクトの展開、さらには類似のプロジェクトにも活用されることを期待いたします。

終わりに、本調査に対してご協力とご支援を賜りました両国関係者の皆様に心から感謝の意を表しますとともに、引き続き一層のご支援をお願いする次第です。

平成20年12月15日

独立行政法人国際協力機構

ケニア事務所長 **高橋 嘉行**

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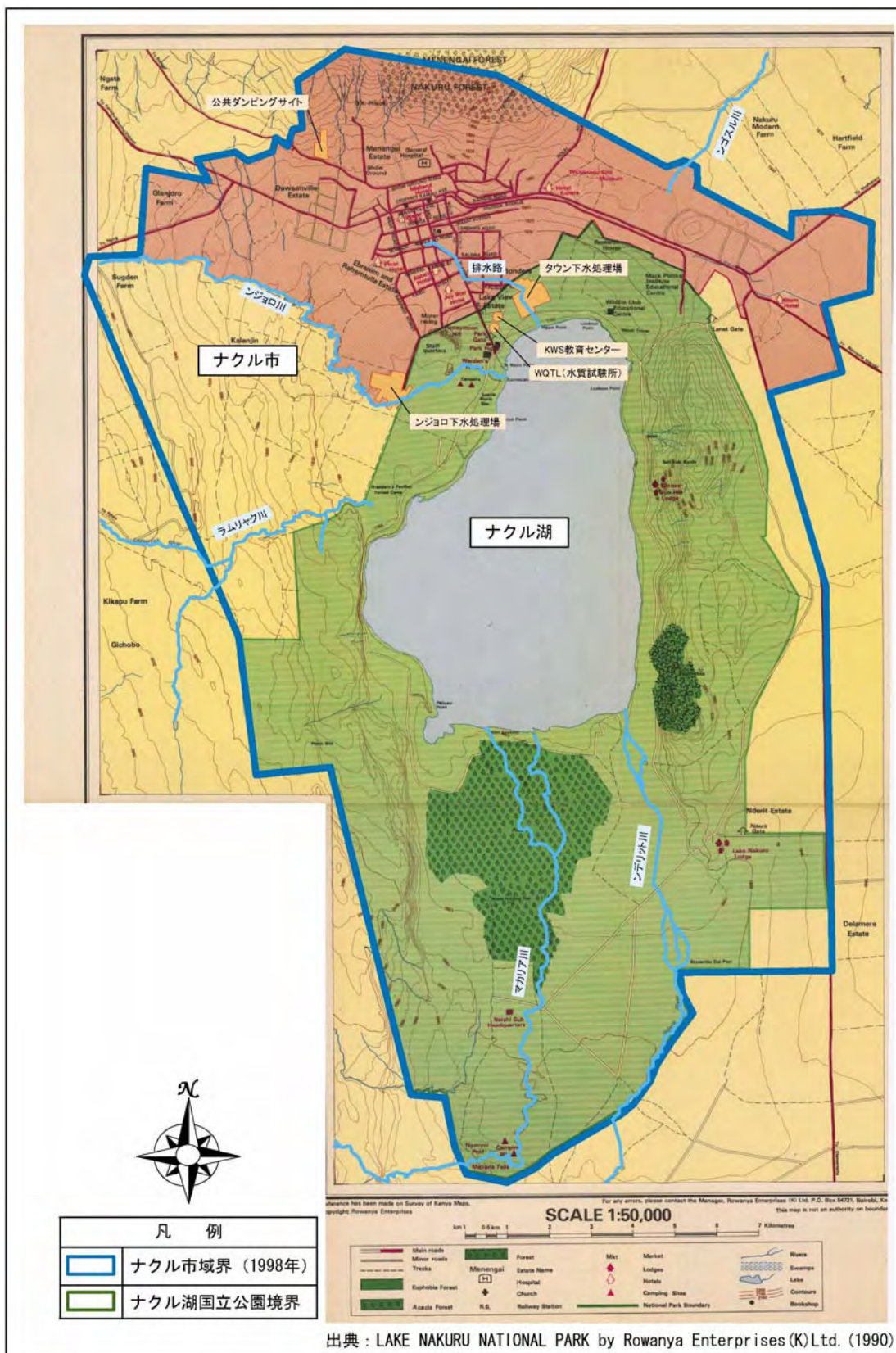
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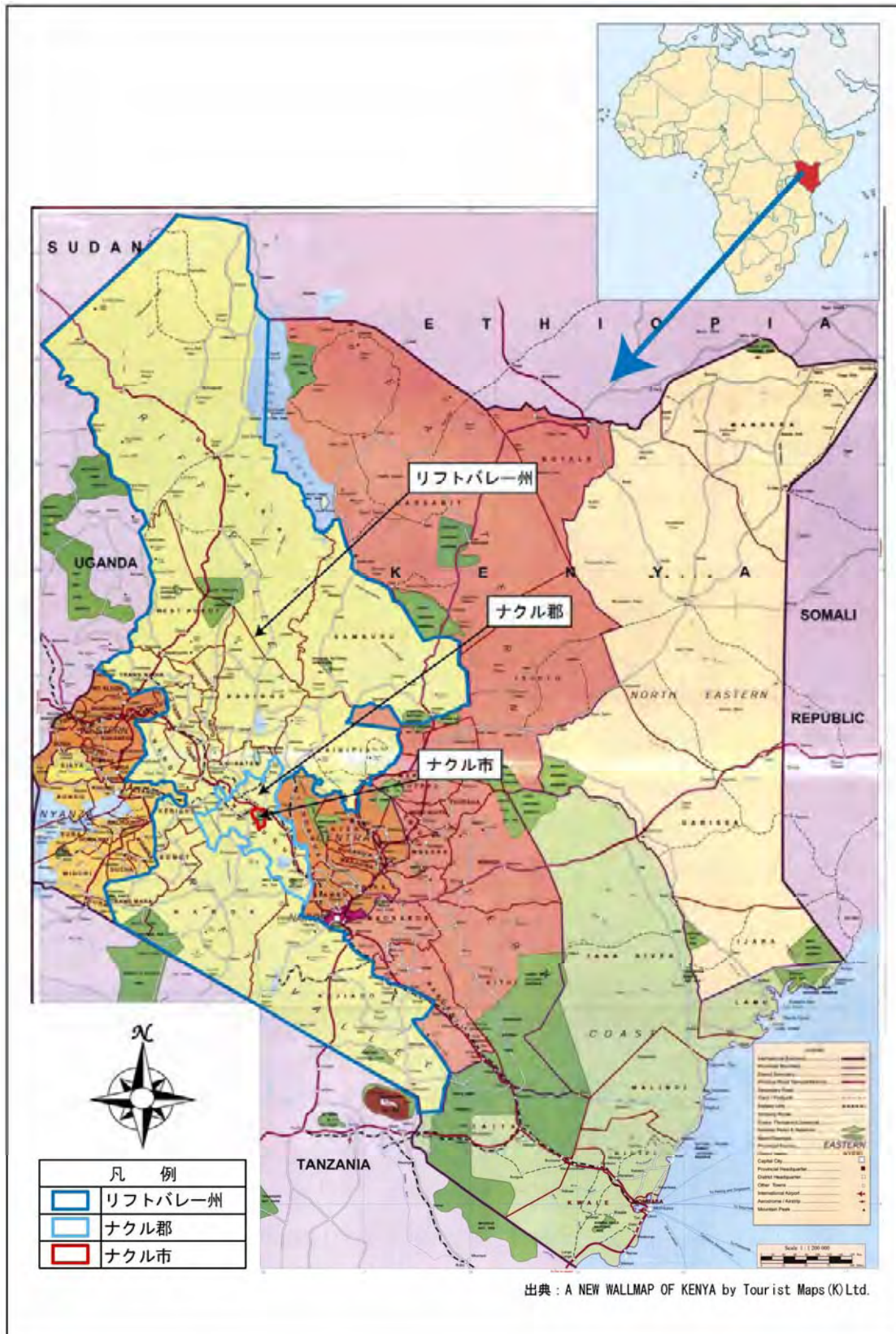
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プロジェクト位置図(1)



出典 : LAKE NAKURU NATIONAL PARK by Rowanya Enterprises (K) Ltd. (1990)

プロジェクト位置図(2)



写 真



2008年11月12日 水質試験所の視察



2008年11月12日 ナクル環境資料センター視察



2008年11月24日 ナクル市役所、ケニア野生生物公社、ナクル水・衛生有限会社など関係機関とのワークショップ(1)



2008年11月24日 ナクル市役所、ケニア野生生物公社、ナクル水・衛生有限会社など関係機関とのワークショップ(2)



2008年11月27日 合同調整委員会(JCC)開催



2008年11月27日 ミニッツ署名

略 語 表

略語	正式名	日本語
DOE	Department of Environment	環境局
EIA	Environment Impact Assessment	環境影響評価
KWS	Kenya Wildlife Service	ケニア野生生物公社
LNNP	Lake Nakuru National Park	ナクル湖国立公園
MCN	Municipal Council of Nakuru	ナクル市役所
NAWASSCO	Nakuru Water and Sanitation Services, Co. Ltd	ナクル水・衛生有限会社
NBA	Nakuru Business Association	企業連合
NEMA	National Environment Management Authority	国家環境管理委員会
PCS	Pollution Control Section	汚染管理課
WQTL	Water Quality Testing Laboratory	水質試験所

評価調査結果要約表

1. 案件の概要	
国 名：ケニア共和国	案件名：ナクル地域における環境管理能力向上プロジェクト
分 野：環境管理 - その他公害対策（旧）	援助形態：技術協力プロジェクト
所轄部署：ケニア事務所	協力金額（評価時点）：3億3,260万円
協力期間	2005年2月14日～
	2009年2月13日
	R/D締結：2005年2月10日
	先方関係機関：ナクル市役所（地方自治省）
	日本側協力機関：
	他の関連協力：
<p>1 - 1 協力の背景と概要</p> <p>ナクル市は、ナイロビから約160km北西に位置する、人口約40万人以上を有するケニア共和国（以下、「ケニア」と記す）第4の都市である。古くからインド洋岸都市モンバサから首都ナイロビを經由してビクトリア湖畔の都市キスムへと通じる交通の要衝として、また周辺農産物の加工・流通の拠点として都市機能を拡大させてきた。1963年の独立以降、大規模プランテーションの衰退により周辺地域農民が移入、それに伴い市街地の面積は過去30年間で89km²から290km²に急増し、バッテリー、皮革なめし、繊維、食料品加工、蚊取線香（除虫菊）など、水質汚濁物質を排出する工場が集積した。その結果、慢性的な水不足や未処理の生活排水・産業廃水による水質汚染が解決すべき問題となっている。</p> <p>一方、ナクル市の南部にはフラミンゴの生息地として世界的に有名なナクル湖がある。ナクル湖はフラミンゴだけでなく、450種の陸生鳥類と70種の水鳥、さらに各地からの渡り鳥が生息する希少さから、ラムサール条約の登録地となっている。また、公園内には他の国立公園では見られない大型動物が生息しているため、ケニアでも有数の来園者数を誇る国立公園となっている。しかしながら、ナクル湖は集水域の中で一番標高が低いところに位置するため、集水域内の市民生活排水や産業廃水、汚染物質は河川流入と地下浸透により湖に集中しやすく、さらに閉鎖湖であるがために流入した汚染物質は湖に蓄積されやすい。よって、湖を中心とする生態系において、ナクル市及び集水域からの汚染物質流入の影響が懸念されている。</p> <p>以上のように、ナクル市内の水質汚染と集水域全体の水資源の劣化は、今後の市民生活と産業活動の持続的発展や希少な生態系・自然資源の保全にかかわる重要な問題である。</p> <p>このようななか、ナクル市役所（MCN）はナクル市における主要汚染源管理（工場廃水、生活排水、廃棄物等）を含めた環境管理への取り組みのために2001年11月に環境局（DOE）を新設したものの、組織としては未だ脆弱であり、環境行政や環境管理の能力の向上が喫緊の課題であった。その状況を鑑み、ケニア政府はMCNを実施機関とし、ナクル市の環境管理能力を向上させることを目的とした技術協力プロジェクトを日本政府に要請し、2005年2月から4年間の予定で「ナクル地域における環境管理能力向上プロジェクト」が実施された。</p> <p>今般、同プロジェクトが2009年2月に終了するにあたり、プロジェクトの活動実績と実施プロセスを評価し、プロジェクトに対する提言と他の類似プロジェクトに対する教訓を導くことを目的として、2008年11月に終了時評価調査団が派遣された。</p>	
<p>1 - 2 協力内容</p> <p>< プロジェクト概要 ></p> <p>ナクル市の水環境を中心とした環境管理能力向上のため、水質モニタリングプログラムの開</p>	

発、環境管理ツールの開発、ステークホルダー間の連携の促進、環境教育・啓発活動を実施する。

(1) 上位目標

ナクル湖流域の環境管理能力が向上する。

(2) プロジェクト目標

ナクル市の水分野を中心とした環境管理能力が向上する。

(3) 成果

1. 信頼できるデータを得るための適切な水質モニタリングプログラムが開発・実施される。
2. 効果的な環境管理を実施するためのツール及び仕組みが整備され、活用される。
3. ナクル湖集水域のより良い管理のための調査・活動に対して、主要関連機関及び利害関係者の間で協力体制が確立する。
4. 官民の関係者による環境管理への取り組み態勢が向上するよう、教育・啓発活動が行われる。

(4) 投入（評価時点）

日本側：		総投入額：約3億3,260万円（評価時点）
長期専門家派遣	3名	機材供与 2,367万8,000円
短期専門家派遣	10名	ローカルコスト負担 1,187万2,000円
研修員受入れ	5名	
ケニア側：		
カウンターパート配置	31名	土地・施設提供

2. 評価調査団の概要

調査者	総括/事業評価	JICAケニア事務所 所長	高橋 嘉行
	評価分析	グローバルリンクマネージメント(株) 研究員	原田 陽子
	評価分析（補佐）	JICAケニア事務所 シニア・プログラム・オフィサー	John N. Ngugi
	協力計画	JICAケニア事務所 所員	井上 陽一
調査期間	2008年11月11日～2008年11月27日		評価種類：終了時評価

3. 評価結果の概要

3 - 1 実績の確認¹

(1) 各成果の達成

【成果1：信頼できるデータを得るための適切な水質モニタリングプログラムが開発・実施される。】

水質試験所（WQTL）では、2006年3月までに定期及び特別モニタリングのプログラムを開発し、それに従ってモニタリング活動を実施してきている。プロジェクト開始から

¹ 成果1を除き、活動の計画（「いつまでに」「何を行い」「その結果どのような状況が達成されているか」）がプロジェクト・デザイン・マトリックス（PDM）に明確に設定されていないため、各活動の「達成度」を判断することは不可能だった。したがって、ここでは、プロジェクト開始時点から現時点に至るまで「何が行われたか」をまとめるにとどめる。

2008年8月までで、4,300以上のサンプルが採取・分析された。測定項目数も、以前から測定されていた有機物質に加え、重金属の測定が可能となったことから、現在では45項目にのぼる。また、サンプルは、市内並びにナクル湖国立公園（LNNP）内外の水源地、上水道、排水路、下水、工場、湖及び河川の各ポイントで採取されている。2008年9月、WQTLは国家環境管理委員会（NEMA）からの認証を取得し、現在その公示を待つのみとなっている。公示されれば、WQTLの測定データに公的な効力が発生し、そのデータを用いた排出元工場企業への指導などが可能となる。

【成果2：効果的な環境管理を実施するためのツール及び仕組みが整備され、活用される。】

MCNの汚染管理課（PCS）、ナクル水・衛生有限会社（NAWASSCO）、ケニア野生生物公社（KWS）の職員に対し、データベースの開発及び活用、湖沼管理、立ち入り検査等の分野で、2008年10月までに、12のトレーニングプログラムが実施され、延べ78名の職員が参加した。また、環境管理ツールの開発も進められ、現在までに「工場査察マニュアル」、「工場廃水対策指導ガイドライン」が作成された。しかし、PCSの職員は保健省からの出向解除により不足していること（評価時点では保健省からの出向で4名が配置されているが、6名が配置されるべきところ2名しか配置されない状況が2007年10月から2008年9月まで続いた）、2007年12月に行われた大統領選挙による混乱のために5ヵ月間、PCSの活動が停滞したことから、これらのツールが十分に活用されているとはいえない状況にあり、さらに同様の理由から、「環境状況報告書」並びに「環境影響評価（EIA）レビューガイドライン」についてもその作成が遅れている。このため、成果2に関しては大統領選挙後の混乱によってプロジェクトが中断した期間と同じ5ヵ月間、プロジェクト期間を延長し、マニュアルの完成及び実践を通じた技術移転、PCSの実施体制の構築を行う必要があると判断される。2007年にPCSによって実施された工場査察数は約130だったが、大統領選挙後の混乱、及びPCSの職員不足により、2008年の実績は8月時点で36にとどまる。プロジェクト開始以降、NEMAが設定している環境基準を遵守していなかったために、通告を受けた工場の数は、月平均10工場であり、通告を受けた後も、その改善を図らなかったとして、2007年には7工場が、また2008年には3工場が、それぞれ訴追されている。排水試料採取を伴う査察は18工場で行われており、これらの工場の2005年から2008年にかけての追従率は、それぞれ0%、69.2%、38.5%、15.4%となっている。2007年及び2008年の追従率が低くなっている要因としては、PCSとWQTLの汚染物質検出能力の向上等が考えられる。

【成果3：ナクル湖集水域のより良い管理のための調査・活動に対して、主要関連機関及び利害関係者の間で協力体制が確立する。】

プロジェクトでは、ナクル湖集水域で環境活動を展開する機関や団体間の連携構築に、積極的に取り組んできている。プロジェクトのイニシアティブの下、MCN環境局、NAWASSCO、KWS及び地元の大学であるエガートン大学のSUMAWAプロジェクトから、各種データの提供を受け、ナクル湖集水域全体を網羅する地理情報システム（GIS）データベース構築が行われた。さらに、水文・水質の対策検討に資するGISモジュール（機能及び情報）の開発も行われている。プロジェクトでは、GISデータベースの構築にあたって、上記の関係機関及び非政府組織（NGO）を招いて、情報交換や連携構築のための会合やセミナーを複数回にわたって開催しており、2009年2月にも、集水域の環境管

理に向けた総合的なアプローチを構築していくことをめざしたセミナーを開催する予定である。

【成果4：官民の関係者による環境管理への取り組み態勢が向上するよう、教育・啓発活動が行われる。】

プロジェクトでは、官民の連携体制構築に向けた数多くの活動を実施してきている。まず、MCN、国立図書館、NGO 2団体と連携し、同図書館ナクル支部に環境情報発信を目的としたナクル環境資料センター(Nakuru Environment Resource Center)が設立された。また、ナクル市民を対象としたワークショップが計6回開催され、合計で約600名の市民が参加した。小学校においても数多くの環境教育プログラムが実施され、延べ児童253名、保護者・教員233名が参加するとともに、児童向けの水環境啓発教材の作成にあたっては、地元の小学校教員10名の参加をみている。この教材を含め、ポスターやニュースレターといった各種の啓発教材がプロジェクトによって作成されている。

(2) プロジェクト目標(ナクル市の水分野を中心とした環境管理能力向上)の達成度

【指標1】 分析データについては、WQTLから各機関に向けて、逐次報告がなされており、MCN、NAWASSCO、KWSの各機関でそれぞれに有効に活用されている。上下水道供給及びその施設管理を管轄するNAWASSCOでは上水道の品質確保や下水処理施設の運営状況の確認に、KWSでは野生生物の生息地の環境保護に、またMCNでは汚染者の取り締まりに、それぞれデータが活用されている。

【指標2】 GISデータベースは、異なる機関から様々な情報の提供を受けて構築されており、ナクル湖集水域を対象としたデータベースのなかでは最も包括的なものといえる。GISデータベースは既に、MCNにより、KWS、NAWASSCO、エガートン大学及びNEMAに配布されている。

【指標3】 「工場査察マニュアル」及び「工場廃水対策指導ガイドライン」が、PCSが工場廃水モニタリングを実施する際に活用できる環境管理ツールとして開発された。「工場査察マニュアル」に基づいての査察も実施されているが、保健省からの出向解除などによるPCSの職員不足から、上記の2ツールは十分に活用されているとはいいがたい状況にある。また、同様の理由から、「環境状況報告書」並びに「EIAレビューガイドライン」についてもその作成が遅れている。2008年10月からは、6名体制に向けたPCSへの職員の増員が行われており(評価時点では4名体制であり、2007年10月からは2名体制であった)これらのツールの活用方法について、新しい職員を含む全職員に対して、十分なトレーニングを実施していく必要がある。

【指標4】 水環境啓発教材が、計2,000部、市内の小学校、国立図書館ナクル支部併設のナクル環境資料センター、KWS、NAWASSCO及び他の関係機関に配布された。

3 - 2 評価結果の要約

(1) 妥当性

ケニアでは、1999年に「環境管理調整法(Environment Management and Coordination Act)」が施行されている。また、これを受け、MCNでは2007年4月、環境管理条例を公布し、環境管理に積極的に取り組む姿勢を明確にする等、本プロジェクトのケニアにおける妥当性は高い。さらに、プロジェクトは環境保全を5つの重要分野のひとつと掲げる我が国の国別援助計画及びJICA国別事業実施計画にも整合している。

(2) 有効性

各成果の具体的な達成度とプロジェクト目標の達成は、前項「3-1 実績の確認」に記載されているとおりであり、その達成には、成果2を中心として大統領選挙後の混乱による中断期間と同じ5ヵ月間のプロジェクト期間の延長が必要と判断される。プロジェクト目標の達成に影響を与えた要因としては、いくつかあげられるが、特に、大統領選挙後の混乱、そして、保健省からの出向解除によるPCSの職員数の不足があげられる。ケニア地方自治省は現在4名のPCS職員数を早急に6名まで増員する方針であり、早期の実施が望まれる。

(3) 効率性

本プロジェクトでは、PCSの業務体制の確立、またMCN、NAWASSCO及びKWSの連携構築に多大な時間を費やしたが、プロジェクト・デザイン・マトリックス(PDM)上では、これらについては「活動」として設定されていない。その他については、計画された活動は成果達成のためにおおむね妥当であったと判断される。投入については、討議議事録(R/D)で確認された職員数がPCSに配置されなかった以外はおおむね適切であった。また、日本側から供与された機材の多くは、WQTLがNEMAの認証を受けるためには必要なものであり、この点で妥当であったと判断される。

(4) インパクト

プロジェクトの上位目標については、将来的に達成可能と思われる。ナクル湖集水域においては、数多くの環境管理活動が様々な団体によって実施されており、これらの団体の情報交換の場もいくつか設けられている。しかし、いずれもより一層の活動強化が望まれるところである。本プロジェクトで行われた様々な連携構築への取り組みが、各機関の連携強化につながっていくことが期待される。

(5) 自立発展性

【組織・制度面】

MCNはDOEを立ち上げるとともに、環境管理条例を2007年に公示しており、環境管理に向けた取り組みを今後も積極的に実施していくものと考えられる。ただ、現在の4名のPCS職員数では、その業務内容のすべてについて十分な取り組みを行っていくことは困難なため、計画どおりの6名体制、もしくはそれ以上への早急な増員が欠かせないところである。また、市民を対象とした環境教育をプロジェクト終了後にも実施していくためには、現在協力を模索している当該分野で活動している他機関との連携が不可欠といえる。NAWASSCOについては、上下水道管理におけるWQTLの果たす役割の重要性について、高く認識している。さらに今後、WQTLの認証が公示されれば、水質試験結果の公的な効力が発生することになり、WQTLが今後も同様の、もしくはそれ以上の活動を展開していくことが期待できる。MCN、NAWASSCO及びKWS間の協力体制については、各機関が水質モニタリングや他機関との連携の必要性及び重要性を十分に認識しているため、引き続き機能していくものと思われる。

【財政面】

2007年4月に調印されたMCN、NAWASSCO、KWS間の合意文書では、水質モニタリング活動に係る3機関の財政負担の必要性について明確に述べられており、この合意ののっとして、各機関はそれぞれにモニタリング活動に対して予算配分を行っている。しかし、2008年11月現在、実際に拠出されている額は非常に限定的なものにとどまっているため、今後は3機関が、合意文書の内容を尊重し、適切な予算執行を行っていくことが求められる（評価時点では、2009年1月から予算支出を開始する予定となっている）。成果4に係る環境教育活動についても、これまでの活動に係る費用はすべて日本側が負担しており、引き続き活動を実施していくためには、MCNによる負担など、何らかの措置が必要である。

【技術面】

WQTL職員については、短期専門家の指導及び本邦研修によってその技術力は着実に向上しており、プロジェクト終了後も現在の活動レベルを維持することに特段の問題はないと思われる。しかし、WQTLには現在2名の技術者しかいないため、いずれかの技術者が異動あるいは退職で職場を離れた場合、その活動に大きな支障が出るのが懸念される。PCS職員についてもその技術力は大きく向上してきている。ただ、プロジェクト終了後も引き続き活動を実施していくためには、マニュアルの実践などを通じた更なる技術力の向上が望まれる。さらに、現在配置されている4名の職員数では、市の工場査察や法執行に係る業務のすべてに対処していくことは不可能であることから、早期に少なくとも2名の職員を配置するとともに、新たに配置される職員へのトレーニングを開始する必要がある。また、成果4の環境教育に係る活動については、環境教育に係るMCN職員の経験は十分とはいえず、これまでと同様に、当該分野での知見を有する他の機関との連携で活動を展開していくことが必要と考えられる。

3 - 3 効果発現に貢献した要因

(1) 計画内容に関すること

WQTLでは職員の異動もなく、活動が順調に進められた。このことは、成果1の発現を可能としたのみならず、信頼できるデータの提供を通じて、他の成果の発現にも大きく貢献した。

(2) 実施プロセスに関すること

2007年4月、MCN、NAWASSCO/WQTL、KWS/LNNPの3機関の間で、水質モニタリングに係る協力に関する合意文書が調印された。これにより、WQTLによる水質モニタリングの費用負担、主要3機関の関係と各々の役割が整理され、本プロジェクト実施中のみならず、その終了後も継続的に水質モニタリングを実施するうえで不可欠な主要3機関の連携が構築された。

3 - 4 問題点及び問題を惹起した要因

(1) 計画内容に関すること

プロジェクト開始当初、PCSは立ち上げられたばかりの部署で、適当な執務スペースをもたず、かつその職員のすべてが保健省からの出向者で占められていた。そのため、プロジェクトはPCSの業務体制の確立に多くの時間を割くこととなった。

(2) 実施プロセスに関すること

2007年12月の大統領選挙後の混乱により、日本人専門家がナクルに立ち入れない状況が5ヵ月にわたって続き、プロジェクトの進捗に大きく影響した。また、プロジェクト期間を通じて、PCSの職員数はその業務内容に比べて十分とはいえず、特に2007年10月に、課の中心となって業務に取り組んでいた2名の職員の出向が解かれ、保健省に戻ったことで、プロジェクトの活動は大きく停滞することとなった。

3 - 5 結 論

プロジェクトは、職員の技術力向上にとどまらず、PCSの業務体制の確立、そして関連3機関の連携体制の確立において非常に大きな役割を果たした。しかし、各職員の技術力の向上に比して、それぞれの機関の自立発展性はまだ十分とはいいがたく、適正な予算配分とその執行、適正な数と能力をもつ職員の配置、また、環境教育、情報共有及び協働行動の点での連携体制の確立等に、今後各機関が取り組んでいくことが強く望まれる。プロジェクト関係者の努力で、多くの活動は予定どおり実施されてきているものの、大統領選挙後の混乱によるPCSの活動停滞はプロジェクトの進捗に大きな影響を与えた。本終了時評価の結果を鑑み、合同評価団では、予定されている成果とプロジェクト目標の達成のために、PCSがカウンターパートとなる成果2を中心とした5ヵ月のプロジェクト期間の延長が必要と判断する。

3 - 6 提言（当該プロジェクトに関する具体的な措置、提案、助言）

< プロジェクト終了前に取り組まれるべき活動 >

(1) プロジェクト期間の延長

2007年12月の大統領選挙後の混乱で専門家が5ヵ月間、現地で活動することができなかったことから、進捗が遅れている成果2に係る活動実施を中心として、プロジェクト期間を5ヵ月延長することが必要と思われる。

(2) PCS職員の早急な配置

地方自治省とMCNは、必要なトレーニングが延長期間内で修了するよう、PCSへのあと2名の職員増員を早急に行うことが求められる。

(3) モニタリング活動に係る予算拠出

MCNとKWSは、2009年1月からモニタリング活動への予算支出を計画どおり開始する必要がある。また、そのために、NAWASSCOを含む3者間で2008年12月中に、サンプル採取及び分析に係る費用について合意形成を図ることが必要である。

(4) 供与機材の適切なメンテナンスのための予算措置

NAWASSCOは、供与機材のメンテナンスのために、2009年のWQTLの予算から適切な額を拠出することが求められる。

(5) メンテナンス業者の確認

2009年2月までに、NAWASSCOは専門家の協力の下、供与機材のメンテナンスや必要資機材調達のための業者を確認・把握する必要がある。

(6) GISデータベースの活用

MCN、KWS、NAWASSCOの各機関は、GISデータについて、その上層部に逐次報告を行い、データの価値や重要性を理解してもらったうえで、活用及びメンテナンスに必要な予算措置を講じてもらうよう働きかけを行っていくことが求められる。また、PCSとの連携の下、MCNのタウン・クラーク室が構築されたGISデータベースの管理人となり、NEMAを含む関係機関がこのデータベースを有効に活用できるよう関係機関の取りまとめを行っていくことが重要である。さらに、MCN、NAWASSCO及びKWSはデータベースを適宜更新し、その更新内容をこれら3機関を含む他の関係機関とも共有を図っていくことが望まれる。

(7) 技術的な持続性の確保

MCN及びWQTLは、経験を積んだ職員の万一の異動や退職の場合に備え、作成された各種マニュアルやガイドラインがきちんと活用され、新たに配属された職員が滞りなく業務を遂行できるように図っていく必要がある。また、それと同時に、各機関は、適切な資格を有する十分な数の職員が常に配置されているよう努めるべきである。

(8) ナクル湖集水域における環境管理のフォーカル・ポイント

プロジェクトは、ナクル湖集水域で環境活動を展開する各機関・団体の連携体制確立に尽力してきた。プロジェクトが終了するにあたり、プロジェクト実施機関であるMCNは、効果的な集水域管理をめざし、同じく流域全体の環境管理に責任を有するNEMAとの連携体制確立を模索する必要がある。

(9) 環境教育継続のための戦略の考案

PCSは2009年2月までに、今後どのように活動を展開していくかを明確にし、同分野で豊富な経験を有するKWS、MCN教育局、NGOといった関係機関と緊密に連携を取り合いつつ、計画を実施に移していくことが求められる。

< プロジェクト終了後に実施されるべき活動 >

(1) PCSへの適切な資格を有する十分な数の職員の配置

プロジェクト開始以来、PCSの職員の多くが保健省からの出向者で占められている。そのため、せっかく経験を積んでも、これらの職員がいつ保健省へ異動させられるかがわからない状況にある。この点を鑑み、地方自治省とMCNはPCSに対し、計画どおり6名のMCN職員の配置を行っていく必要がある。MCN職員を配置することで、移転技術のPCSにおける定着が期待できるからである。さらに、今後のPCSの業務拡張に備え、現在及び将来の業務内容、及びその業務実施に必要なとされる職員数を明確にし、必要な職員数を確保していくことが求められる。

(2) 月例会議の継続

現在、MCN、NAWASSCO及びKWS間で継続的に開催されている月例会議は、相互理解の促進や懸案事項への対処といった点で大きな成果をあげてきている。プロジェクト終了後も、引き続き開催されていくことが強く望まれる。

3 - 7 教訓（当該プロジェクトから導き出された類似プロジェクトの発掘・形成、実施、運営管理に参考となる事柄）

(1) 正式文書の締結

各機関・団体はそれぞれに目的をもち、異なる業務体系を有しているものである。そのため、2機関以上を巻き込んでプロジェクトが行われる場合、その開始前に、それぞれの機関のプロジェクトにおける役割や責任を明確にした文書を正式に取り交わしておくことは、非常に重要と考えられる。本プロジェクトでは、プロジェクト実施中のみならず、終了後における各機関の役割や責任を盛り込んだ合意文書に調印し、各機関のプロジェクト活動への積極的な参加を確保した。

(2) プロジェクト実施機関の業務体制確立のための時間の確保

プロジェクトでは、PCSの業務体制確立のために当初、多くの時間を割いている。適当な執務スペースの提供をMCNから受けるまでに1年半以上を要したとともに、その職員は他の省庁からの出向者で占められていた。PCSにおける業務体制の確立については、PDMにおいて、全くその言及はなく、またそのための活動についても記載されていない。しかし、プロジェクトがPCSの業務体制確立にかなりの時間を割いたこと、かつそのために、PDMに記載された他の活動にかかる時間が削られたことは確かであり、プロジェクト開始前には実施機関の体制及び受入れ能力については慎重な確認を行うとともに、特に新設された組織に対する協力を行う場合には、業務体制の確立には相当な時間が必要となる可能性があることに留意する必要がある。

Summary of Terminal Evaluation

I. Outline of the Project	
Country: Republic of Kenya	Project Title: Project for Improvement of Environmental Management Capacity in Nakuru Municipality and Surrounding Areas
Sector: Environmental Management/Natural Environment	Cooperation Scheme: Technical Cooperation Project
Division in Charge: JICA Kenya Office	Total Cost (at the time of evaluation): 332 million yen
Period of Cooperation: February 2005 to February 2009 (Conclusion of R/D: 10 th February 2005)	Partner Country's Implementation Agency: Municipal Council of Nakuru (MCN)
	Supporting Organization in Japan: N/A
	Related Cooperation:
<p>1 Background of the Project</p> <p>Nakuru Municipality or Nakuru town is the fourth largest city in Kenya with an estimated population of more than 400,000. The town is located about 160km northwest of the capital, Nairobi. Since Kenya's independence in 1963, the town has been experiencing rapid population growth and expansion of economic activities. The urban and peri-urban area in the town has expanded from 89km² to 290km² over the last 30 years and a number of factories are now in operation. As a result, the deterioration of the water-related environment has become one of the major concerns in the town.</p> <p>The town is situated in the Lake Nakuru watershed which covers 1600 km². Lake Nakuru is famous worldwide for its flamingos and the area around the lake provide diverse habitats for a number of fowls and wild animals. Part of the watershed is a designated Ramsar site. Located at the bottom of a basin with no out-flowing river, the lake receives considerable amounts of water flowing from the catchment and all pollutants are likely to accumulate there. The wastewater discharged in the town is now posing a serious threat to the ecosystem of the watershed.</p> <p>In cognizant of the problems above, the Municipal Council of Nakuru (MCN) created the Department of Environment (DOE) in 2001 and subsequently, requested the Government of Japan through the Government of Kenya to capacitate the newly created DOE to deal with various environmental issues in the town effectively.</p> <p>The "Project for Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Area" was launched in February 2005 as a four-year technical cooperation project upon the signing of the Record of Discussion (R/D) between JICA and MOLG on February 10, 2005. In the R/D, MCN was designated as the implementing agency of the Project, while the Nakuru Water and Sanitation Services Co. Ltd. (NAWASSCO) and the Kenya Wildlife Services (KWS) were assigned as collaborating agencies. In February 2007, the Mid-term Evaluation was conducted to assess the progress of the Project and to make the recommendations to achieve the Project Purpose in the remaining project period.</p>	

2 Project Overview

Project Summary

In order to improve the water-related environmental management capacity of the Nakuru Municipal Council, 1) credible quality with effective coverage in monitoring , 2) Effective environmental management tools will be developed. Further more, cooperation among stakeholders and environmental education will be promoted.

(1) Overall Goal

To improve environmental management in the Lake Nakuru Watershed Region

(2) Project Purpose

To improve the water-related environmental management capacity of the Nakuru Municipal Council

(3) Outputs

1. Credible quality with effective coverage in monitoring is attained.
2. Effective environmental management tools and mechanism for enforcement are developed and utilized.
3. Cooperation is established among lead organizations and stakeholders for the study and actions in the watershed for its better management.
4. Public and private participation in local environment management is enhanced. (1) Overall Goal

(4) Inputs (At the time of evaluation)

Japanese Side

(a) Experts

Three (3) Long-term Experts in Total

Ten (10) Short-term Experts in Total

(b) Training of Kenyan Counterpart Personnel in Japan

Five (5) Counterpart Personnel

(c) Provision of Equipment

In total Ksh 18,132,344 (equivalent to USD 241,099 as of November 2008)

(e) Local Cost

In Total Ksh 9,087,993 (equivalent to USD 120,836.5 as of November 2008)

Kenyan Side

(a) Counterpart Personnel

Thirty One (31) Counterpart Personnel in Total

(b) Land and Facilities

Land, office space and necessary facilities for the Project's head office in MCN

Meeting rooms in KWS, Nakuru

Facilities necessary to conduct water quality monitoring analysis in WQTL

Electricity, water supply and telecommunication services in MCN and WQTL

(c) Local Cost

The Kenyan side provided part of the operational expenses from the budget allocated to DOE of MCN and KWS/Lake Nakuru National Park (LNNP). No detailed figure is available.

II. Evaluation Team

Member of Evaluation Team:

(1) Japanese Members

Mr. Yoshiyuki Takahashi (Leader), Chief Representative, JICA Kenya office

Ms. Yoko Hadada (Evaluation Analysis), Researcher, Global Link Management Inc.

Mr. Yoichi Inoue (Evaluation Planning), Representative, JICA Kenya Office

Mr. John N. Ngugi (Evaluation Analysis (Assistant)), Senior Program Officer,
JICA Kenya Office

(2) Kenyan Members

Eng. Julius Mungai (Leader), Municipal Engineer, Municipal Council of Nakuru

Eng. Ephantus Kamau, Engineer, Department of Urban Development, Office of the Deputy

Prime Minister and Ministry of Local Government

Period of Evaluation: 11/11/2008 - 27/11/2008

Type of Evaluation : Terminal Evaluation

III. Results of Evaluation

I Achievement

(1) Achievement of the Project Purpose

Indicator 1: Utilization of monitoring data

The monitoring data analyzed by WQTL is reported back to the PCS and KWS. The three organizations, namely PCS, NAWASSCO and KWS, have been effectively utilizing the analyzed data for the execution of their duties. NAWASSCO which is responsible for the sewerage and potable water of the town has been using the data to maintain acceptable water quality for drinking as well as to assess the effectiveness of the sewerage treatment process. KWS is accumulating the data to maintain the standards for acceptable habitat for wildlife and PCS uses it to enforce regulations on polluters. It is expected that the accreditation of WQTL will facilitate the enforcement process undertaken by PCS and the monitoring data will be more widely used for such purposes.

Indicator 2: Degree of improvement and enhancement of GIS database contents

The GIS DB was created with a wide range of information collected from different organizations. It is the most comprehensive GIS DB available for the Lake Nakuru Catchment. The DB has been distributed by MCN to KWS, NAWASSCO, Egerton University and NEMA.

Indicator 3: Utilization of environmental management tools (manuals, reports, etc.)

The "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment" were prepared as the environmental management tools to be utilized by PCS in effluent monitoring. Although 25 factory inspections were conducted, referring to the "Factory Inspection Manual" between October 2007 and July 2008, due to the lack of the personnel available, both tools have not been fully utilized. In addition, the preparation of the "State of Environment" and "EIA Review Guideline" has been delayed. Since new personnel have been assigned to PCS from October 2008, the Project needs some more time to train them to properly utilize the tools including those that will be prepared in the coming months.

Indicator 4: Degree of dissemination of materials developed for environmental awareness

2000 copies of the booklet on water environment targeting school children have been distributed to primary schools, the Nakuru Environmental Resource Center attached to the Nakuru branch of the National Library, KWS, NAWASSCO and other relevant organizations.

(2) Achievement of the Outputs

Output 1: Credible quality with effective coverage in monitoring is attained.

The target indicators have been attained. The Water Quality Testing Laboratory (WQTL) under NAWASSCO developed the regular and special-purpose monitoring programmes in collaboration with MCN and KWS, and finalized them in March 2006. Although the post-election unrest as well as some disagreement between NAWASSCO and KWS suspended the WQTL's monitoring activities for some time, as of August 2008 more than 4,300 samples had been collected and analyzed after the commencement of the Project. This is an average of 100 samples per month. WQTL is now able to analyze the parameters of heavy metal in addition to the physio-chemical and biological parameters. A total of 45 parameters are analyzed as indicated in Annex 3-1. The samples are collected at water sources and tap water, storm water drains, sewerage, factories, lakes and rivers throughout the town as well as inside and outside the LNNP. The regular monitoring program prepared in March 2006 was recently revised, reflecting the actual needs on the ground and the available budget.

The accreditation of WQTL was approved in September 2008 and is listed for the gazette by the National Environment Management Authority (NEMA). The accreditation of WQTL will facilitate the enforcement process undertaken by PCS.

Output 2: Effective environmental management tools and mechanism for enforcement are developed and utilized.

Both OJT and off-JT have been organized for the development and operation of database, water quality standards, factory inspection, lake management, etc. As of October 2008 a total of 78 staff from MCN, NAWASSCO and KWS participated in 12 training programmes (See Annex 3-2). Along with the technical development of the staff, the environmental management tools have been prepared; the "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment". Between October 2007, when the draft "Factory Inspection Manual" was prepared, and July 2008, a total of 25 compliance sampling inspections were undertaken by PCS referring to the draft manual. However, due to the lack of personnel, these tools have not been fully utilized. In addition, the preparation of the "State of Environment" and the "EIA Review Guideline" has been delayed.

The total number of the factory inspections conducted by PCS in 2007 was approximately 130. In 2008 the post-election unrest and the limited number of PCS staff has negatively affected its frequency and this number dropped to 36 as of August 2008. The major factories operating in Nakuru is 18 and their compliance rate between 2005 and 2008 was 0%, 69.2%, 38.5% and 15.4% respectively (Annex 3-3). The reasons for the lower compliance rates in 2007 and 2008 are most likely to be attributed to the better detection capacity of PCS and WQTL among other reasons. Since the Project commenced, the average number of notices issued to those factories which fail to

comply with criteria set by NEMA is ten per month. MCN took legal action against seven factories in 2007 and three in 2008 for failure to improve their performance within a reasonable period of time after the notices were issued.

With regard to the Output 2, the progress of the activities has been delayed. In response to JICA's strong recommendation to increase the number of CP in PCS, MOLG and MCN confirmed in October 2008 that some new staff will be deployed to PCS. Since the planned termination of the Project is only three months away, it is unlikely for the Project to train them adequately before then.

Output 3: Cooperation is established among lead organizations and stakeholders for the study and actions in the watershed for its better management.

The Project has been actively working to build the partnership for Lake Nakuru watershed management. Under the leadership of the Project, relevant data was collected from MCN/DOE (Nakuru Local Urban Observatory Project: LUO Project funded by Switzerland), NAWASSCO, KWS and the Egerton University (Sustainable Management of Watershed (SUMAWA) Project funded by USAID) with the aim of developing a comprehensive GIS database covering the whole Lake Nakuru Catchment. The collected data included rainfall, land use, altitude, river position and its water volume, geological map and road network as well as the results of water quality monitoring data collected and analyzed in the Project and satellite imageries. The creation of database was completed in July 2008. In addition, the hydrological and water pollution analysis module was prepared for formulation of an action plan for the environmental management of Lake Nakuru Catchment.

In the creation of the GIS database above, a series of meetings/seminars were organized, inviting MCN, NAWASSCO, KWS, the Egerton University and NGO, to exchange information as well as to facilitate the cooperation among the stakeholders. In February 2007 and June 2008 seminars on environmental management of Lake Nakuru Catchment were organized to facilitate cooperation in pollution control in the catchment. In October 2008 the workshop on Mau Spatial Data Infrastructure was co-funded by the Project and other funding agencies such as ERMIS Africa to create mutual understanding to establish the Mau Spatial Data Infrastructure and Data Clearing House with stakeholders. Further to that, the Project is planning to organize another seminar in February 2009 to formulate a road map for a comprehensive approach for environmental management of the catchment.

Output 4: Public and private participation in local environment management is enhanced.

A number of initiatives have been made by the Project to create a linkage between public and private sectors for environmental management. An information center was established at the Nakuru branch of the Kenya National Library Services in collaboration with the library, MCN and NGOs for the dissemination of environmental information. Six workshops were held with the participation of approximately 600 residents and their proceedings were compiled into two publications. 206 children and 207 school management committee members from 78 primary schools in the municipality participated in a series of workshops on raising environmental awareness while 47 children and 26 teachers from 22 primary schools attended the water quality

testing program. Both activities were organized by the Project. In addition, primary school teachers from different schools in the municipality were involved in the preparation of a booklet on water and the Project produced other educational materials as well as indicated in Annex 3-4.

2 Summary of Evaluation Results

(1) Relevance

The Project objectives are still consistent with the environment and development policies of Kenya. The Environmental Management and Coordination Act (EMCA) enacted in 1999 and in line with the EMCA, MCN announced the enactment of the Environmental Management By-laws in April 2007 with the aim of facilitating the effective environmental management within the municipality. Furthermore, the Project objectives are consistent with the JICA Kenya's Country Strategy, which regards the environmental conservation as one of the five pillars of assistance to Kenya.

(2) Effectiveness

The Project Purpose is likely to be achieved provided that the Project is extended by five months. The post-election turmoil and the lack of personnel in PCS hampered the smooth implementation of the Project to some extent.

(3) Efficiency

The Project spent a considerable period of time for the physical establishment of PCS and the coordination among three organizations although these were not specifically identified as "activities" in the PDM. Other than that, the planned activities were sufficient to produce the outputs. With regard to the inputs, these were generally adequate to realize the Outputs, except for the fewer number of C/P in PCS than that agreed in R/D.

(4) Impact

The prospect to achieve the overall goal is positive. A number of projects and activities on the environmental management have been taking place in the Lake Nakuru Catchment. Those organizations and agencies that are working for environmental issues in Nakuru and the surrounding areas have come together and formed the forums to share information and to discuss issues and problems related to their activities. The Project has made some contributions to the strengthening of the linkages among these stakeholders through the organization of seminars and the creation of the GIS DB.

(5) Sustainability

(Organizational/Institutional Aspects)

MCN established the DOE and enacted the Environmental Management By-laws to effectively implement their duties with regard to the environmental management. It is therefore highly likely that MCN will continue to work for the preservation and rehabilitation of the environment within the municipality in collaboration with other stakeholders. NAWASSCO is now highly aware of the importance of WQTL in the execution of their mandate. In addition, the accreditation of WQTL will enhance its credibility as a laboratory. It is, therefore, highly likely that WQTL will continue with or even expand its present operations. The cooperation among MCN, NAWASSCO and KWS is likely to be sustained because they are now highly aware of the importance of regular water quality monitoring as well as the need for collaboration among themselves.

(Financial Aspects)

The MOU signed in April 2007 explicitly stipulates the financial responsibilities of the three

organizations with regard to water quality monitoring. In line with this, MCN, NAWASSCO and KWS have already allocated budgets for such purposes. However, up to November 2008, the actual budget disbursed was nominal. The monitoring activity of MCN and KWS may be seriously affected unless each organization honours its responsibilities as agreed upon in the MOU. The outreach programmes organized under Output 4 have been exclusively financed by the Project. Some arrangement is required for the programmes to be duly continued.

(Technical Aspects)

The level of knowledge and skills of the WQTL staff members is now sufficient to continuously undertake the present activities. However, in case of transfer or turn-over of one of the two technologists, the WQTL activities may be seriously affected. The PCS staff have considerably improved their technical capacity, but further training is required for them to be fully capacitated to undertake their assignments. Furthermore, the training of the new staff, who have been joining in PCS since October 2008, should be duly conducted to enable PCS to properly undertake their duties.

3 Factors Promoting the Achievements

(1) Factors Concerning to Planning

All the WQTL staffs have remained in the Project throughout the Project period and their technical capability has been notably enhanced. This significantly contributes to the realization of not only Output 1 but also the other Outputs through the provision of reliable data for the other organizations.

(2) Factors Concerning to the Implementation Process

In April 2007, MCN, NAWASSCO and KWS concluded the MOU, which stipulates the roles and responsibilities of three organizations in water quality monitoring both within the framework of the Project and after the Project completion. It successfully streamlined the monitoring activities that used to be undertaken by each organization with little coordination.

4 Factors Inhibiting the Achievement

(1) Factors Concerning to Planning

At the inception period, the Project spent a substantial period of time for the physical establishment of PCS since it was a newly created section with all staff seconded from the other ministry. In addition, it took more than one and half years before proper office was allocated to the Project.

(2) Factors Concerning to the Implementation Process

There were two major factors which had substantial negative impacts on the Project progress. One was the post-election turmoil. No Japanese expert was allowed to visit Nakuru for five months due to security considerations. The other was the insufficient number of PCS staff. Because the number of staff was never adequate to carry out the planned activities, especially since November 2007 when two core staff were returned to the Ministry of Health, a significant delay in the activities have been observed.

5 Conclusion

The Project successfully contributed to not only the enhancement of the technical capacity of the assigned staff but also the physical establishment of PCS and the development of a partnership between the three organizations. Although the technical capacity of individual staff members has been greatly enhanced, there is a lot of room for improvement with regard to institutional establishment and sustainability aspects. The budget allocation and disbursement, assignment of sufficient number of qualified staff, the establishment of the mechanism for cooperation in environmental education, information sharing, and collective action are some of the issues that need to be seriously examined by each organization. Taking into consideration the outcomes of the Terminal Evaluation Study, the Joint Evaluation Team concludes that the Project Purpose is likely to be achieved provided that the Project period is extended by five months.

6 Recommendation

Before the Completion of the Project

(1) Extension of the Project period

The Project period should be extended by 5 months for the activities under Output2 to be completed.

(2) Immediate deployment of PCS staff

As agreed, MOLG and MCN should take immediate action to deploy two more staff so that they will have a sufficient time to be trained.

(3) Financial arrangement regarding monitoring activities

MCN and KWS should start disbursement of their allocated budgets from January, 2009. In this regard, by the end of December, 2008, the three organizations should agree on the preferential rate for water quality monitoring and analysis services rendered by NAWASSCO.

(4) Allocation of budget sufficient for the maintenance of the provided equipment

NAWASSCO should undertake proper maintenance for the provided equipment.

(5) Confirmation of service agencies

NAWASSCO and JAT should confirm where to procure spare parts and consumables for the provided equipment by February 2009.

(6) Utilization of GIS DB

The data accumulated by each organization should be disseminated to their management so that the management is aware of its importance and hence allocates the necessary budget for the effective utilization of the GIS DB. The MCN/Town Clerk's Department in collaboration with PCS should be a custodian of the GIS DB and work with the other stakeholders including NEMA in its effective utilization. MCN, NAWASSCO and KWS should update the information and share it among themselves as well as other organizations engaged in the environmental management of the watershed.

(7) Technical sustainability

Since there will always be concern regarding the possibility of transfer or turn-over of the trained and experienced staff, the prepared manuals and guidelines should be in use so that new staff members will be properly guided should any core staff leave. MCN/PCS, NAWASSCO/WQTL and KWS should confirm the adequate number of qualified staff that should be assigned.

(8) Focal point for the environmental management of Lake Nakuru Catchment

MCN as an implementing agency of the Project should seek the collaboration with NEMA in the effective environmental management of the Catchment.

(9) Formulation of a workable strategy for the continuation of outreach programmes

PCS should identify the way forward by February, 2009 and take the lead to organize the programme in close collaboration with KWS, Department of Education/MCN and NGOs.

After the Completion of the Project

(1) Assignment of adequate number of qualified permanent staff to PCS

Since the commencement of the Project, most staff assigned to PCS were seconded from another ministry. There is therefore always a concern that the experienced staff may be transferred back to this ministry at any time. MOLG and MCN should try to recruit six qualified permanent staff in total for PCS so that the experience and expertise will be retained in PCS. In line with this, MCN should formulate an organizational structure of PCS indicating the staff requirements and the current and future job descriptions.

(2) Continuation of monthly tripartite meeting

The monthly tripartite meeting has been offering a good avenue for the organizations to arrive at a mutual understanding and to address problems in a collective manner. This should therefore be continued after the completion of the Project.

7 Lessons Learned

(1) Importance of conclusion of a formal agreement

Each organization has its own mandate and working modalities. Therefore, in any project requiring the involvement of more than one organization, it is recommended that a formal agreement be concluded to clarify the roles and responsibilities of each organization in the project before it commences. Such agreement will assure the commitment and the involvement of the organizations. A memorandum of understanding concluded by three organizations of MCN, NAWASSCO and KWS stipulates their roles and responsibilities within the framework of the Project as well as after the completion of the Project. In addition, their respective commitment towards the Project's activities is reiterated.

(2) Time for Physical Set-up of the CP organization

The Project started with the physical establishment of PCS. No proper office was allocated to the Project for a period of more than one and half years after commencement. At the same time, most staff were seconded from another ministry. Although no activity was indicated in PDM for the office set-up of PCS, it is obvious that the Project spent a substantial period of time to this purpose and the time for the activities indicated in the PDM was consequently squeezed. It is therefore important to allocate enough time for the physical set-up of the CP organization before the commencement of the project.

第1章 評価調査の概要

1-1 調査団派遣の経緯と目的

ナクル市は、ナイロビから約160km北西に位置する、人口約40万人を有するケニア共和国(以下、「ケニア」と記す)第4の都市である。古くからインド洋岸都市モンバサから首都ナイロビを經由してビクトリア湖畔の都市キスムへと通じる交通の要衝として、また周辺農産物の加工・流通の拠点として都市機能を拡大させてきた。1963年の独立以降、大規模プランテーションの衰退により周辺地域農民が移入、それに伴い市北部の商工業地域面積は過去30年間で89km²から290km²に急増し、バッテリー、皮革なめし、繊維、食料品加工、蚊取線香(除虫菊)など、水質汚濁物質を排出する工場が集積した。その結果、慢性的な水不足や未処理の生活排水・産業廃水による水質汚染が解決すべき問題となっている。

一方、ナクル市は、マウ山脈の裾野に広がる森林、ナクル湖に流入するいくつもの河川を含む1,600km²のナクル湖集水域の中にあり、市民生活はその集水域の森林、川、地下水といった自然資源を享受することで成立している。しかし、ナクル市民と集水域内の違法住民の数が増加することで森林は伐採され、集水域の森林面積は過去30年間で47%から15%に減少、土壌浸食による森林地域の保水力低下が心配されている。また、水資源が汚染されているため住民は感染症の危険にさらされており、乳幼児の死因第1位は腸チフスという状況である。

また、ナクル市の南部にはフラミンゴの生息地として世界的に有名なナクル湖がある。ナクル湖はフラミンゴだけでなく、450種の陸生鳥類と70種の水鳥、さらに各地からの渡り鳥が生息する希少さから、ラムサール条約の登録地となっている。また、公園内には他の国立公園では見られない大型動物がケニア野生生物公社(KWS)の保護管理の下に生息しているため、ケニアでも有数の来園者数を誇る国立公園となっている。しかしながら、ナクル湖は集水域の中で一番標高が低いところに位置するため、集水域内の市民生活排水や産業廃水、汚染物質は河川流入と地下浸透により湖に集中しやすく、さらに閉鎖湖であるがために流入した汚染物質は湖に蓄積されやすい。よって、湖を中心とする生態系において、ナクル市及び集水域からの汚染物質流入の影響が懸念されている。

以上のように、ナクル市内の水質汚染と集水域全体の水資源の劣化は、今後の市民生活と産業活動の持続的発展や希少な生態系・自然資源の保全にかかわる重要な問題である。

このようななか、ナクル市役所(MCN)は2001年11月に環境局(DOE)を新設し、ナクル湖流域における主要汚染源管理(工場廃水、生活排水、廃棄物等)を含めた環境管理に取り組もうとしているが、組織としては未だ脆弱であり、環境行政や環境管理の能力の向上が必要とされている。そして、MCNが環境管理をより効果的・効率的に執行するためには信頼性の高い科学的データの収集・管理が不可欠であるが、汚染源・汚濁化学物質の特定、定期的な水質モニタリング、湖の水収支などの調査・データ管理は未だ技術的にも経験的にも不十分な状態である。

ナクル湖流域で活動するNGOや他援助機関は、森林保全、流域土地利用や廃棄物管理、野生生物保護などの環境管理にかかわる活動を行っているが、各々が散発的で連携が不十分であったため調査結果や活動成果が蓄積されにくい状況にある。この状況を改善するためにも、MCNがイニシアティブをもってより効果的かつ持続可能性をもってナクル市及びナクル湖流域の環境管理に取り組むことが期待されている。

これらの状況を踏まえ、ケニア政府はMCNを実施機関とするナクル市の環境管理能力を向上さ

せることを目的とした技術協力プロジェクトを要請し、2004年3月、9月に事前評価調査団が派遣された。

その結果、MCNを主なカウンターパート機関、ナクル水・衛生有限会社（NAWASSCO）及びケニア野生生物公社（KWS）を重要連携機関として、2005年2月、地方自治省、JICAケニア事務所との間でプロジェクト実施に係る討議議事録（R/D）の署名が取り交わされ、2005年2月より4年間の予定で実施されている。現在、1名の長期専門家（業務調整/データ整理）及び短期専門家チーム（総括・環境管理、副総括/データ解析・モニタリング、工場査察・廃水対策指導、データベース構築、水質汚濁解析）を派遣中である。

今回の終了時評価では、2009年2月のプロジェクト終了に向け、相手国政府関係者とこれまでの実績を確認し、評価5項目の観点から評価を行い、終了までに向けた活動に関する提言及びプロジェクト期間延長の必要性の検討を行うこと、得られた教訓を取りまとめることを目的とする。

1 - 2 調査団の構成と調査期間

(1) 調査団構成

1) 日本側

	担当分野	氏名	所属
(1)	総括/事業評価	高橋 嘉行	JICAケニア事務所 所長
(2)	評価分析	原田 陽子	グローバルリンクマネジメント株式会社
(3)	評価分析(補佐)	John N. Ngugi	JICAケニア事務所 シニア・プログラム・オフィサー
(4)	協力計画	井上 陽一	JICAケニア事務所 所員

2) ケニア側

	担当分野	氏名	所属
(1)	総括	Eng. Julius Mungai	Municipal Engineer, Municipal Council of Nakuru
(2)	-	Eng. Ephantus Kamau	Engineer, Department of Urban Development, Office of the Deputy Prime Minister and Ministry of Local Government

(2) 調査期間

2008年11月11日～2008年11月27日

日付	調査内容	場所
11/11	火 8:30 日本側調査団打合せ 14:00 地方自治省表敬訪問 (ナクルへ移動)	ナイロビ
11/12	水 9:00 ナクル市役所 (MCN) 表敬 10:00 ケニア野生生物公社 (KWS) / ナクル湖国立公園 (LNNP) 表敬 12:00 水質試験所 (WQTL) 視察 / ナクル環境資料センター視察 14:00 環境局長との打合せ 16:00 ナクル水・衛生有限公司 (NAWASSCO) 表敬 17:00 インタビュー (日本人専門家)	ナクル
11/13	木 インタビュー (KWS、WQTL、NAWASSCO)	ナクル
11/14	金 インタビュー [汚染管理課 (PCS)、KWS、ローカルNGO]	ナクル
11/15	土 インタビュー (WQTL、日本人専門家)	ナクル
11/16	日 インタビュー (ローカルNGO) 資料整理	ナクル
11/17	月 インタビュー (MCN教育局、SUMAWAプロジェクト、KWS、LUOプロジェクト)	ナクル
11/18	火 インタビュー (MCN環境局長、MCN環境局副局長、NAWASSCO、日本人専門家)	ナクル
11/19	水 インタビュー [国家環境管理委員会 (NEMA)] 実績及び実施プロセスの取りまとめ	ナクル
11/20	木 団内打合せ	ナクル
11/21	金 ワークショップ準備、合同評価報告書・ミニッツのドラフト作成	ナクル
11/22	土 ワークショップ準備、合同評価報告書・ミニッツのドラフト作成	ナクル
11/23	日 ワークショップ準備、合同評価報告書・ミニッツのドラフト作成	ナクル
11/24	月 ワークショップ	ナクル
11/25	火 ミニッツ協議	ナクル
11/26	水 ミニッツ協議	ナクル
11/27	木 合同調整委員会、ミニッツ署名 (ナイロビへ移動)	ナクル

1 - 3 主要面談者

(1) ケニア側

【副首相府・地方自治省 (Office of the Deputy Prime Minister and Ministry of Local Government : MOLG)】

Mr. Sammy Kirui Permanent Secretary

【ナクル市役所 (Municipal Council of Nakuru : MCN)】

Mr. Kibwan Kombo Deputy Town Clerk

Mr. Symon C. Kiarie Director of Environment/Project Manager

Mr. Sammy Kimani Deputy Director of Environment

Mr. G. Gachomba Head, Pollution Control Section, DOE

Mr. S. Gicheru Assistant Head, Pollution Control Section, DOE

Mr. P. Raboso Assistant, Pollution Control Section, DOE

Ms. Josephine Ondieki Deputy Municipal Quality Assurance and Standard Officer, Department of Education

【ナクル水・衛生有限会社 (Nakuru Water and Sanitation Services, Co. Ltd : NAWASSCO)】

Eng. John K. Cheruiyot Managing Director

Eng. J. N. Gathathi Technical Manager

Eng. Omedo. E.O. Zone Manager

Mr. A Kulecho Chief Laboratory Technologist/WQTL

Mr. N. Waweru Laboratory Technologist/WQTL

Mr. C. Nyakundi Laboratory Technician/WQTL

Mr. G. Mutai Laboratory Technician/WQTL

【ケニア野生生物公社 (Kenya Wildlife Service : KWS)】

Ms. Lydia Kisoyan Senior Warden

Ms. Ann Kahihia Assistant Director

Mr. Joseph Edebe Senior Research Scientist

Mr. Bernard Kuloba Research Scientist

【国家環境管理委員会 (National Environment Management Authority : NEMA)】

Ms. Sally Kibos District Environment Officer

【SUMAWAプロジェクト (Sustainable Management of Watershed Project)】

Dr. Patterson Semenyé Project Coordinator

【フラミンゴ・ネット】(ローカルNGO)

Mr. Jackson Raini Chief Executive Officer

【SCEP (Sustainable Community Environment Programme)】(ローカルNGO)
Mr. Jonathan Kimuge Chief Executive Officer

【LUOプロジェクト (Nakuru Local Urban Observatory Project)】
Solomon Mbugua

(2) 日本側

【在ケニア日本国大使館】
大仲 幸作

二等書記官 (調査実施前及び実施後)

【プロジェクト専門家】

1) 長期専門家

渡辺 成男

業務調整/データ管理

2) 短期専門家

氏家 寿之

チーフアドバイザー

臼田 暁子

データベース構築

檜枝 俊輔

水質汚濁分析

第2章 評価の方法

2 - 1 評価法

関連資料のレビューを通じて終了時評価の評価調査項目を設定した。

2 - 2 評価のプロセス

今回の終了時評価に必要なデータは、以下の方法で収集した。

(1) 既存資料のレビュー

討議議事録(R/D、2005年2月締結)、プロジェクト・デザイン・マトリックス(PDM)Version 1(2005年9月改訂)及びVersion 2(2007年2月改訂)、日本人専門家によるプロジェクト事業報告書と仮評価票(2008年10月作成)、その他のプロジェクト関連文書をレビューした。

(2) 関係者への質問票調査とインタビュー調査

日本人専門家(長期・短期)、ケニア側カウンターパートであるナクル市役所(MCN)、ナクル水・衛生有限会社(NAWASSCO)と付属の水質試験所(WQTL)、ケニア野生生物公社(KWS)のナクル湖国立公園(LNNP)に対し事前に質問票を配布し、それに基づいて関係者にインタビューを行った。また、ナクル市内で環境管理活動を展開する関係政府機関及びNGOへのインタビューも併せて行った。

(3) ワークショップの開催

11月24日(月)にプロジェクト関係者を集め、以下のとおりワークショップを開催した。

日時	2008年11月24日(月) 8:30~14:30
目的	➤ プロジェクトの達成状況の共有 ➤ 残りのプロジェクト期間とプロジェクト終了後の課題とその対応についての議論
参加者	ナクル市役所、ナクル水・衛生有限会社/水質試験所、ケニア野生生物公社/ナクル湖国立公園、国家環境管理委員会、日本人専門家、ケニア側評価調査メンバー、日本側評価調査メンバー 計26名

(4) 現地踏査の実施

WQTL、サンプリングポイント(下水処理場、ナクル湖、河川)、ナクル環境資料センターなどを踏査した。

(5) 評価結果ミニッツの作成

以上の評価プロセスを経て、合同評価団メンバーによる評価報告書とミニッツを作成し、ケニア側カウンターパート及び日本人専門家への説明を行った。

(6) 合同調整委員会 (Joint Coordinating Committee : JCC) 開催

11月27日(木) MCNタウンクラークによる議長の下、JCCが開催された。この場において合同評価調査団より評価結果が報告され、合同評価調査団として評価報告書 (Evaluation Report) が署名されたのに続き、ケニア側と合同評価調査団総括の間で署名された。重要連携機関であるNAWASSCO及びKWSも立会人 (Witness) として署名した。

2 - 3 データ分析方法

上記の方法によって収集した情報を基に、プロジェクトの成果や目標の達成状況と実施プロセスを確認し、評価5項目に沿った評価分析を行った。評価5項目の概要は以下のとおりである。

妥当性	プロジェクト目標が終了時評価時点で受益者のニーズと合致しているか、ケニア側の政策や日本の援助政策との整合性はあるかなど、プロジェクトの正当性・必要性をこれまでの実績に基づいて検証する。
有効性	プロジェクトの成果が期待どおりに現れているかを確認し、今後のプロジェクトの実施により、ターゲット・グループに便益がもたらされる見込みを検証する。
効率性	プロジェクトの成果とコストの関係に着目し、投入された資源がこれまで効率的に活用されてきたかを検証する。
インパクト	プロジェクトの実施によりもたらされる、より長期的な効果や波及効果を見る。プロジェクト計画時に予期されなかった正・負のインパクトも含む。
自立発展性	プロジェクト終了後もプロジェクトで発現した効果が持続する見込みを検証する。

2 - 4 評価調査の制約

特になし。

第3章 プロジェクトの実績

3 - 1 投入実績

プロジェクトが開始された2005年2月から2008年11月末までの日本側・ケニア側の投入実績は、以下のとおりである。

(1) 日本側の投入

1) 長期専門家

チーフアドバイザー、業務調整の2分野で計3名の長期専門家が派遣された〔2009年2月で73人月（MM）の予定〕。

2) 短期専門家

チーフアドバイザー、データ解析、水質分析、データベース構築等の分野で計10名の短期専門家が派遣された（2009年2月で43MMの予定）。

3) 機材供与

終了時評価時点で計1,813万ケニア・シリング（Ksh）（24万1,000ドル相当²）の機材が供与された。

4) 研修員受入れ

終了時評価調査時点で合計5名のカウンターパートが本邦研修に参加した。

5) 現地業務費

現地業務費は、2007年10月末までの実績として、約909万Ksh（12万1,000ドル相当）が投入された。

(2) ケニア側投入

1) カウンターパートの配置

プロジェクト期間中に、ナクル市役所（MCN）から計17名がカウンターパートとして、またナクル水・衛生有限会社（NAWASSCO）/水質試験所（WQTL）から計8名、ケニア野生生物公社（KWS）から計6名のプロジェクト関係者が配置された。

2) 土地、施設、機材等の提供

2006年9月下旬にMCN内に長期専門家2名、汚染管理課（PCS）5名、秘書1名を収容する事務所スペースと関連設備（通信、水道・電気を含む）が提供された。その他、ナクル市にあるKWSの会議施設、WQTLの施設・機材保管場所などが本プロジェクト実施のために提供されている。

3) 現地業務費

ケニア側からは、MCNの環境局（DOE）及びKWSの予算から、現地業務費の一部が拠出されているが、詳細な額については不明である。

² JICA 11月公式換算レート 1Ksh. = 75.209米ドル

3 - 2 成果の実績

現時点における各成果の達成度は、以下のとおりである。なお、成果1を除き、活動の計画(「いつまでに」「何を行い」「その結果どのような状況が達成されているか」)がPDMに明確に設定されていないため、各活動の「達成度」を判断することは不可能であった。したがって、ここでは、プロジェクト開始時点から現時点に至るまで「何が行われたか」をまとめるにとどめる。

成果1：信頼できるデータを得るための適切な水質モニタリングプログラムが開発・実施される。

	指 標
1-1	計測項目のサンプル数、測定項目
1-2	国家環境管理委員会（NEMA）または他の認証機関による水質試験所の認証

成果1の指標については、達成されている。NAWASSCOに付設するWQTLでは、MCNとKWSからの意見を取り入れながら、2006年3月までに定期モニタリング及び特別モニタリングのプログラムを開発し、それに従ってモニタリング活動を実施してきている。

大統領選挙後の混乱や、モニタリング実施に係る条件面でNAWASSCOとKWSそれぞれの主張が折り合わず、モニタリング活動そのものが中断することが何度かあったものの、プロジェクト開始以来、2008年8月までに、4,300以上のサンプルが採取・分析された。これは、月平均で約100サンプルが採取・分析されていることになる。測定項目数も、以前から測定されていた有機物質に加え、本プロジェクトによる機材供与によって重金属の測定が可能となったことから、現在では45項目にのぼる。

また、サンプルは、市内並びにナクル湖国立公園（LNNP）内外の水源地、上水道、排水路、下水、工場、湖及び河川の各ポイントで採取されている。なお、2006年3月に策定された定期モニタリングプログラムは、予算状況その他に照らし合わせて、最近改訂が行われた。

2008年9月、WQTLはNEMAからの認証を取得し、現在その公示を待つのみとなっている。公示されればWQTLの測定データは公的な効力を持ち、WQTLの測定データを用いた排出元工場への指導などが可能となる。

成果2：効果的な環境管理を実施するためのツール及び仕組みが整備され、活用される。

	指 標
2-1	データベースのカバーする範囲
2-2	訓練された職員数
2-3	モニタリングされた施設数と重要事項
2-4	汚染管理への企業側の追従率及びアクションの割合
2-5	環境ツール（マニュアル、報告書）の数と範囲

PCSのカウンターパート及び連携機関であるNAWASSCOとKWSの職員に対し、データベースの開発及び活用、湖沼管理、立ち入り検査等の分野でトレーニングが実施された。2008年10月までに、12のトレーニングプログラムが実施され、3機関から延べ78名の職員が参加している。職員に

対する能力開発と並行して、環境管理ツールの開発も進められ、現在までに「工場査察マニュアル」、「工場廃水対策指導ガイドライン」が作成された。「工場査察マニュアル」については、マニュアルのドラフトが完成した2007年10月から2008年7月にかけて、25回の工場査察がマニュアルに基づいて実施されている。しかし、PCSの職員不足から、上記の2ツールが十分に活用されているとはいえない状況にある。また、同様の理由から、「環境状況報告書」並びに「環境影響評価(EIA)レビューガイドライン」についてもその作成が遅れている。

2007年にPCSによって実施された工場査察数は約130である。しかし、大統領選挙後の混乱により5ヵ月間活動が停滞したこと³、及びPCSの職員不足により、2008年の実績は8月時点で、36にとどまっている。プロジェクト開始以降、NEMAが設定している環境基準を遵守していなかったために、通告を受けた工場数は、月平均10工場で、通告を受けた後も、その改善を図らなかったとして、2007年には7工場が、また2008年には3工場が、それぞれ訴追されている。また、排水試料採取を伴う査察は18工場を対象として行われており、これらの工場の2005年から2008年にかけての追従率は、それぞれ0%、69.2%、38.5%、15.4%である。2007年及び2008年の追従率が低くなっている主たる要因として、PCSとWQTLの汚染物質検出能力の向上が考えられる。

PCSの職員は6名が配置されていたが、保健省からの出向解除などにより2007年10月には2名まで減ってしまったため、JICA事務所からケニア側に対してたびたび申し入れが行われ、2008年10月では4名が配属されるとともに、地方自治省によりPCSを6名以上の体制とするべく、早急に新たな職員を配置することが約束されている。しかしながら、新たな職員の配置が早急に行われた場合でも、プロジェクト期間が残り3ヵ月となっている現在、これらの職員に対するトレーニングがプロジェクト期間中に修了することはかなり難しいものと思われる。前述の各種ガイドライン・マニュアルの作成が大統領選挙後の混乱などにより遅れていることも鑑み、プロジェクト期間の延長が必要と考えられる。

成果3：ナクル湖集水域のより良い管理のための調査・活動に対して、主要関連機関及び利害関係者の間で協力体制が確立する。

	指 標
3-1	GISデータベースの範囲とアクセス
3-2	検討された活動(対策)の範囲
3-3	主要関係機関と利害関係者による集水管理活動に向けられた資源の投入状況

プロジェクトでは、ナクル湖集水域で環境活動を展開する機関や団体間の連携構築に、積極的に取り組んできている。プロジェクトのイニシアティブの下、MCN環境局、NAWASSCO、KWS及び地元の大学であるエガートン大学のSUMAWAプロジェクトから、各種データの提供を受け、ナクル湖集水域全体を網羅する地理情報システム(GIS)データベース構築が行われた。データベースには、地形・地質、降水量、土地利用をはじめ、プロジェクトで収集・分析された水質モニタリングの結果や衛生画像も含まれ、2008年7月に構築が完了している。さらに、水文・水質の対策検討に資するモジュールの開発も行われており、プロジェクト終了前までに、関係者を集めて、

³ 2008年1月初旬～5月下旬の間、PCS職員が出勤できない、排出元工場の操業が通常どおり行われななどしたため、PCSの活動自体が停滞した。

同モジュール等を活用しながら集水域管理に必要な活動（対策）を検討する予定となっている。

プロジェクトでは、GISデータベースの構築にあたって、上記の関係機関及びNGOを招いて、情報交換や連携構築のための会合やセミナーを複数回にわたって開催している。2007年2月と2008年6月には、ナクル湖集水域の環境管理に関するセミナーを開催し、集水域における汚染対策に係る連携構築についての話し合いをもった。また、2008年10月には、マウ森林域で活動する団体を対象とした「マウ空間データ構築（Mau Spatial Data Infrastructure）」の立ち上げのためのワークショップ開催に対して、ERMISアフリカをはじめとする他の援助機関とともに資金提供を行った。さらに、2009年2月には、集水域の環境管理に向けた総合的なアプローチを構築していくことをめざしてのセミナーをプロジェクトが主催する予定である。

成果4：官民の関係者による環境管理への取り組み態勢が向上するよう、教育・啓発活動が行われる。

	指 標
4-1	地元に根ざす活動の数と範囲
4-2	市民参加の数と範囲
4-3	開発した教材の数と範囲

プロジェクトでは、官民の連携体制構築に向けた数多くの活動を実施してきている。まず、MCN、国立図書館、NGO 2団体との連携の下、同図書館ナクル支部に環境情報発信を目的としたナクル環境資料センター（Nakuru Environment Resource Center）が設立された。また、ナクル市民を対象としたワークショップが計6回開催され、合計で約600名の市民が参加している。小学校においても数多くの環境教育プログラムが実施され、延べ児童253名、保護者及び教員233名が参加するとともに、児童向けの水環境啓発教材の作成にあたっては、地元の小学校教員10名の参加をみている。この児童向けの啓発教材を含め、ポスターやニュースレターといった各種の教材・印刷物がプロジェクトによって作成及び配布されている。

3 - 3 プロジェクト目標の達成度

大統領選挙後の混乱によりPCSの活動が5ヵ月間停滞したこと、このため各種マニュアル及びガイドラインの作成が遅れ、さらに保健省からの出向解除による職員不足の解消への取り組みも遅れたことを鑑み、プロジェクト目標達成には、大統領選挙の混乱による活動停滞期間と同じ5ヵ月間のプロジェクト期間延長が必要と判断される。

プロジェクト目標：ナクル市の水分野を中心とした環境管理能力が向上する。

	指 標
1	モニタリングデータの活用度合い
2	GISデータベースの改善、活用の度合い
3	環境管理ツール（マニュアル、レポート等）の活用度合い
4	環境啓発のために開発された教材の配布状況

【指標 1】

分析データについては、WQTLから各機関に向けて逐次報告がなされており、各機関でそれぞれに有効に活用されている。上下水道供給及びその施設管理を管轄するNAWASSCOでは、上水道の品質確保や下水処理施設の運営状況の確認にデータを活用している。また、KWSでは野生生物の生息地の環境保護に、MCNでは汚染者の取り締まりに、それぞれ活用されている。今後、WQTLの認証が正式に公示されてWQTL測定データが公的な効力をもつようになれば、その分析データを活用して行われているPCSの環境管理行政にも一層の弾みがつくことが期待される。

【指標 2】

GISデータベースは、異なる機関から様々な情報の提供を受けて構築されており、ナクル湖集水域を対象としたデータベースのなかでは最も包括的なものといえる。データベースは既に、MCNによってKWS、NAWASSCO、エガートン大学及びNEMAに配布されている。

【指標 3】

「工場査察マニュアル」及び「工場廃水対策指導ガイドライン」が、PCSが工場廃水モニタリングを実施する際に活用できる環境管理ツールとして開発された。「工場査察マニュアル」については、マニュアルのドラフトが完成した2007年10月から2008年7月にかけて、25回の査察がマニュアルに基づいて実施されているものの、保健省からの出向解除により2007年10月からはPCSには2名の職員しかいない状態となったことから、上記の2ツールは十分に活用されているとはいえない状況にある。また、同様の理由から、「環境状況報告書」並びに「EIAレビューガイドライン」についてもその作成が遅れている。2008年10月時点ではPCS職員数は4名に回復しており、さらに早急に2名以上の増員が行われる予定であることから、これらのツールの活用方法について新しい職員を含む全PCS職員に対して、十分なトレーニングを実施していくことが必要である。

【指標 4】

水環境啓発教材が、計2,000部、市内の小学校、国立図書館ナクル支部併設のナクル環境資料センター、KWS、NAWASSCO及び他の関係機関に配布された。

3 - 4 上位目標の達成見込み

上位目標：ナクル湖流域の環境管理能力が向上する。

	指 標
1	ナクル湖流域での環境管理活動の数
2	ナクル湖流域の環境管理活動の範囲（水、廃棄物、森林保護、啓発活動など）
3	環境管理活動に係る協力関係の度合い

本プロジェクトではMCN、NAWASSCO、KWSの環境管理活動を実施しており、さらには主要関係機関及び利害関係者の間の流域管理に対する持続的な協働体制の構築を支援している。

主要関係機関及び利害関係者の協働体制の構築については、MCN及びNEMAが主体的に取り組んで進めることを、終了時評価のワークショップ及び協議においてケニア側関係者と確認しているほか、本プロジェクトではマニュアルの整備、予算措置を含む主要関係機関の協力のあり方の検討・実行などの支援を行っており、プロジェクト終了後もこれらの活動が継続・強化されれば、上位目標達成の見込みはあると判断できる。

ナクル湖流域の環境管理活動の意味においては、現在、フランス援助庁（AFD）が最終処分場の新設を含むナクル市の固形廃棄物管理分野の支援を実施しており、この取り組みも本プロジェクトの上位目標達成に貢献すると思われる。

3 - 5 実施プロセスの検証

(1) プロジェクトの実施体制について

開始当初、プロジェクトでは、PCSの業務体制の確立及びMCN、KWS及びNAWASSCOの3機関の連携構築に多くの時間を割くこととなった。まず、PCSは新たに立ち上げられた部署であったため、必要な機材供与が行われた。また、配置された職員の多くは保健省からの出向者であったことから、PCS職員として必要な知識・技能習得に多くの時間がかけられている。

さらに、プロジェクトでは、ナクル市の水質モニタリングに係るMCN、KWS、NAWASSCO 3機関の連携体制構築に関する合意文書の調印にも注力している。この合意文書は、プロジェクトの仲介の下、3者間での協議を繰り返した後、2007年4月に調印された。この調印によって初めて、水質モニタリング活動に係る3機関の協働体制が確立されたといえ、プロジェクトの大きな成果のひとつに数えることができる。

これらの活動は、プロジェクトの進捗に大きく貢献した。しかし、その一方で、その進捗を大きく阻害することとなった要因もある。ひとつは2008年上半期、ケニア国中に影響を与えた大統領選挙後の混乱である。この期間、2008年1月初旬～5月末の5ヵ月間にわたって、治安上の問題から日本人専門家はナクルに滞在することも、また訪問することすら不可能となった。さらに、モニタリング活動に従事するPCS職員も、緊張の高い地域への立ち入りは難しく、さらには排出元企業の企業活動自体が停滞したことから、モニタリング活動の一時中断を余儀なくされている。

もうひとつは、PCSの職員不足である。2005年2月のプロジェクト開始時には2名が保健省からの出向で配置されたのみであり、専門家及びJICA事務所の督促などによって、プロジェクト開始から1年以上経過した2006年4月に、全員が保健省からの出向であるが6名の職員が配置された。6名であってもPCSの職員数はその業務内容に比べて十分とはいいがたかったが、その後、大学院進学による2名の離任があり、さらに2007年10月には課の中心となって業務に取り組んでいた2名の職員の出向が解かれて保健省に戻ったことで、PCSは2名の体制となり、大統領選挙による混乱と相まってプロジェクトの活動は大きく停滞することとなった。度重なる専門家及びJICA事務所による職員配置の督促の結果、2008年10月には2名の職員が保健省からの出向によって配置され、さらに地方自治省とMCNはあと2名を早急に増員してPCSを6名体制とすることを決定した。しかしながら、2009年2月のプロジェクト終了までに、これらの職員に対するトレーニングが修了する見込みは低いといわざるを得なく、大統領選挙後の混乱でPCSの活動が停滞した期間と同じ5ヵ月間、プロジェクト期間を延長することが必要と思われる。

(2) プロジェクトのモニタリングについて

2005年5月から毎月、ナクル市環境局長が議長となり、MCN/DOE、MCN公衆衛生課、NAWASSCO/WQTL、KWS/LNNPの関係者が集まる月例会議が行われ、プロジェクトの進捗状況や日々の活動に係る問題点等が話し合われている。その他、年度ごとのプロジェクト進捗状況の報告と、今後の実施計画の確認を目的とした合同調整委員会が開催されている⁴。

また、WQTLについては、ISO17025の枠組みを活用したチェックリストに基づき、四半期ごとに活動の進捗に関するモニタリングが行われている。

(3) ケニア側のオーナーシップについて

【カウンターパートの配置状況】

PCSへのカウンターパートの配置に係る問題は、プロジェクト実施期間を通じての懸案であった。R/Dには、プロジェクトに対して、DOEから10名のカウンターパートが配置されることが明記されているが、プロジェクトが開始した段階で配置されたカウンターパートは2名のみであった。その後、2006年4月に6名となったものの、異動、進学等により2007年10月に再び2名に戻っている。2008年10月、地方自治省及びMCNはPCSに新たに4名の職員を配置して6名とすることを決定し、本評価時点では4名体制となっているが（あと2名は早急に配置予定）、PCSの職員不足はプロジェクト活動の進捗を大きく阻害する要因となった。

WQTLの職員については、プロジェクト実施期間を通じて異動がなく、このことは、職員の技術力向上に大きく貢献するとともに、予定された活動の順調な進捗を促進するものとなった。

【カウンターパートの能力】

WQTL職員の技術力向上についてはめざましいものがあり、担当業務の遂行にほぼ支障ないものとなっている。一方、PCSについては、職員の技術力は大きく向上しているものの、さらなる技術移転が必要な状況といえる。これまでに、WQTLから2名、PCSから3名の職員が本邦研修に参加しているが、このうち、PCSの1名については、その後、保健省からの出向が解かれ、同省に戻っている。

【予算】

プロジェクト期間を通じて、ほとんどの現地業務費は日本側が負担している。2007年4月に調印された合意文書では、MCN、NAWASSCO、KWSそれぞれが2008年8月より水質モニタリング活動に必要な経費を負担することが明文化されたが、2008年11月現在、その額は非常に限定されたものにとどまっている。

⁴ 第1回合同調整委員会が2005年9月に、第2回合同調整委員会が2006年4月にそれぞれ行われた。また、第3回合同調整委員会は、2007年2月に実施された中間評価に併せて開催された。

第4章 評価結果

4 - 1 5項目ごとの評価

本項では、プロジェクト実施の妥当性、有効性、効率性、インパクト、自立発展性の5つの観点（評価5項目）からプロジェクトの実績を分析し、課題を検討する。

(1) 妥当性

1) ケニアの開発政策との整合性

本プロジェクトの上位目標（ナクル湖流域の環境管理能力が向上する）とプロジェクト目標（ナクル市の水分野を中心とした環境管理能力が向上する）は、プロジェクト計画時と変わらず、ケニア政府が掲げる政策と合致している。

ケニアの環境管理政策については、1999年に策定された「環境管理調整法（Environment Management and Coordination Act）」で、環境管理の地方分権化とキャパシティ開発を促進することへの重要性が謳われ、地方行政府に訴追権限が付与されている。これを受け、ナクル市役所（MCN）では、2007年4月、地方自治大臣の承認を経て環境管理条例を公布し、環境管理に積極的に取り組む姿勢を明確にしている。

2) 日本の援助政策との整合性

環境保全は日本の援助政策でも重要とされ、水質汚濁を含む水問題への積極的な取り組みが強調されている。また、2000年8月に策定された我が国のケニアに対する国別援助方針、2006年8月に改定されたケニアに対するJICAの国別事業実施計画でも、環境保全は、5つの重要分野のひとつとなっている。

3) ケニアにおけるニーズとの整合性

ナクル地域における水環境の悪化は、住民の健康にとって深刻な影響を及ぼしつつあるとともに、この地域に生息する野生生物の生存をも脅かすものとなっている。MCNは、ナクル市の水環境を含む環境保全に重要な役割を担っているにもかかわらず、その体制や技術力は十分とはいえず、様々な問題に対して適切に対処しているとはいいがたい状況にあった。その状況を鑑み、本プロジェクトでは、効果的な環境管理に必要とされる法執行能力、環境教育、また関係機関との連携構築といった重要分野におけるMCNの能力向上をめざして開始されたものであり、本プロジェクトの必要性は高い。

4) プロジェクト・アプローチの妥当性

ナクル湖国立公園（LNNP）を含むナクル市内の水環境の更なる悪化を食い止めるためには、関係各機関の連携が欠かせないところである。本プロジェクトでは、MCNや水質試験所（WQTL）といった主要機関の能力構築とともに、地域で環境活動を展開する様々な機関の連携体制構築に焦点を当てた活動を行ってきている。各機関が運営資金や人的資源等の面で様々な制約を抱えながら活動していること、また、それぞれの活動内容が互いに関連していること等を考えると、より適切な環境管理に向け、地域のリソースを集約し、効果的、かつ効率的に事業を実施していくことをめざした本プロジェクトのアプローチは妥当

と考えられる。

(2) 有効性

プロジェクト目標の達成状況については、前述の「3-3 プロジェクト目標の達成度」で示したとおりであり、その達成には、プロジェクト期間の延長が必要と判断される。プロジェクト目標の達成に影響を与えた要因としては、いくつかあげられるが、特に、大統領選挙後の混乱そして、汚染管理課（PCS）の職員数の不足があげられる。職員の増員が早急に実現することを望むところである。

(3) 効率性

1) 活動・投入

本プロジェクトでは、PCSの業務体制の確立、またMCN、ナクル水・衛生有限会社（NAWASSCO）及びケニア野生生物公社（KWS）の連携構築に多大な時間を費やしたが、PDM上では、これらについては「活動」として設定されていない。その他については、計画された活動は成果達成のためにおおむね妥当であったと判断される。WQTLにおいては、技術力及び試験場の業務実施体制のいずれについても大きく向上し、このことは、成果1の達成を可能としたばかりではなく、信頼に足る分析データの提供を通して、他の成果の達成にも大きく貢献することとなった。一方、成果2については、引き続きその達成のための活動を継続していく必要がある。投入については、R/Dで確認された職員数がPCSに配置されなかった点以外はおおむね適切であったと考えられる。

2) 日本側の投入

日本側の投入は、プロジェクト目標及び成果の達成に対し、おおむね妥当であったと判断できる。ただ、中間評価以降のプロジェクト後半は、R/Dで約されている総括の長期派遣が行われず、短期専門家派遣を繰り返す形での派遣となった。

3) 機材供与

日本側から供与された機材の多くは、WQTLが国家環境管理委員会（NEMA）の認証を受けするためには必要なものであり、この点では妥当であったと判断される。NAWASSCOは、今後、機材の適切なメンテナンスのための予算配分を行っていく意向である。

(4) インパクト

プロジェクトの上位目標「ナクル湖流域の環境管理能力が向上する」については、将来的に達成可能と思われる。ナクル湖集水域においては、数多くの環境管理活動が様々な団体によって実施されており、これらの団体の情報交換の場もいくつか設けられている。政府関係機関を中心とする「ナクル県環境委員会（Nakuru District Environment Committee）」、政府機関とともに数多くのNGOが参加する「ナクル環境協会（Nakuru Environmental Consortium）」、マウ森林域で活動する団体の連携をめざして立ち上げがはかられている「マウ空間データ構築（Mau Spatial Data Infrastructure）」等があるが、いずれもより一層の活動強化が望まれるところである。本プロジェクトで行われた様々な連携構築への取り組みが各機関の連携強化につ

ながっていくことが期待される。なお、MCNの行政範囲はナクル湖集水域の一部であり、流域全体を網羅した環境活動については、ナクル県全体の環境問題を管轄するNEMAとの連携は欠かせず、NEMAの行政能力のより一層の向上が望まれるところである。終了時評価において開催したワークショップにおいても、NEMA及びMCNの役割が重要であり、2機関が関係機関との連携を進めていくことを確認している。

プロジェクトの波及効果としては、MCNとWQTLが大学生を中心にインターンを受け入れていることから、プロジェクトで移転された技術がこれらの大学生にも広まることとなった。また、成果4に係る活動実施の過程で、MCN教育局との連携体制が確立した。

(5) 自立発展性

1) 組織・制度面

MCNは環境局(DOE)を立ち上げるとともに、環境管理条例を2007年に公布しており、環境管理に向けた取り組みを今後も積極的に実施していくものと思われる。ただ、現在のPCSの4名体制では、その業務内容のすべてについて十分な取り組みを行っていくことは困難なため、早急な増員が欠かせないところである。また、市民を対象とした環境教育を今後も実施していくためには、その分野で活動している他機関との連携が不可欠といえる。

NAWASSCOについては、上下水道管理におけるWQTLの果たす役割の重要性について、高く認識している。さらに今後、WQTLへの認証が公示されれば、水質試験場としての信頼性も高まるため、WQTLが今後も同様の、もしくはそれ以上の活動を展開していくことが予想される。

MCN、NAWASSCO及びKWS間の協力体制についても、引き続き機能していくものと思われる。これは、3機関ともに水質モニタリングの重要性、また自分たちの業務を円滑に遂行していくために、他2機関との連携が不可欠であることを十分に認識しているからである。しかし、合意文書で確認された水質モニタリング活動に係るコスト負担については、未だ実施に至っていない。3機関の連携体制を継続させていくためにも、モニタリング活動への予算支出が早急に実現することが望まれる。

2) 財政面

【水質モニタリング】

2007年4月に調印されたMCN、NAWASSCO、KWS間の合意文書では、水質モニタリング活動に係る3機関の財政負担の必要性について明確に述べられている。この合意にのっとり、MCNでは2008/09財政年度に140万ケニア・シリング(Ksh)の予算をモニタリング活動に振り分けている。これは、前年度の50万Kshから大幅な増額である。またKWSでは、これまでは合意文書調印以前のWQTLとKWS間の合意にのっとり、LNNP内でサンプル採取を行うWQTL職員に対し、昼食代の支払いを行う程度であったが、今後毎月4万Kshを拠出するとしている。一方、NAWASSCOでも、WQTLに対し、2009年は500万Kshを配分する計画である。さらに、合意文書では、MCNとKWSがNAWASSCOに対し、データ分析に係る費用を支払うことも謳われている。これらの予算が順調に執行されたならば、現在プロジェクトで実施されているモニタリング活動の多くは継続して行われていくものと判断される。しかし、合意文書では2008年8月からの拠出が約されているものの、2008年11月現在、実際

に拠出されている額は非常に限定的なものにとどまっている。プロジェクト期間中、ほとんどすべてのモニタリング活動費用は、日本側が負担してきているため、今後3機関が、合意文書の内容を尊重し、適切な予算執行を行わない場合、活動が大きく停滞することになりかねない。

【環境教育】

成果4に係る環境教育活動についても、これまでの活動に係る費用はすべて日本側が負担しており、引き続き活動を実施していくためには、何らかの措置が必要である。

3) 技術面

【WQTL】

WQTL職員に対しては水質モニタリングの技術移転がなされており、大きな支障なく受け入れられている。職員のサンプル採取、分析及びラボ管理における技術力の向上にはめざましいものがあり、プロジェクト終了後も現在の活動レベルを維持することに特段の問題はないものと思われる。しかし、WQTLには2名の技術者しかいないため、いずれかの技術者が異動あるいは退職で職場を離れた場合、その活動に大きな支障が出るのが懸念される。

【PCS：工場査察】

PCS職員の法執行に係る知識は十分に向上してきている。環境管理ツールとしてプロジェクトが開発したマニュアルやガイドラインを活用して工場査察を実施することも可能であり、技術力の大幅な向上が認められる。ただ、プロジェクト終了後も引き続き活動を実施していくためには、更なる技術力の向上が望まれる。さらに、現在の4名の職員数では、市の工場査察や法執行に係る業務のすべてに対処していくことは不可能と思われることから、早急に増員を行うとともに、新たに配置された職員へのトレーニングを開始する必要がある。

【環境教育】

成果4の環境教育に係る活動は、プロジェクトのイニシアティブの下、PCSと他機関の連携のなかで実施に移されてきた。環境教育に係るPCS職員の経験が少ないことを鑑みると、これまでと同様に、PCSは当該分野での経験が豊富なKWS、MCN教育局など、他の機関との連携で環境教育プログラムを展開していくことが必要と考えられる。

4 - 2 結 論

プロジェクトは、MCN及び関連機関の水環境管理能力の向上をめざして行われてきたが、職員の技術力向上にとどまらず、PCSの業務体制の確立、そしてMCN、NAWASSCO、KWSの関連3機関の連携体制の確立においてもプロジェクトが果たした役割は非常に大きい。3機関の協働体制はこれまでになく緊密なものとなっており、各機関間のコミュニケーションも頻繁に行われている。

しかし、各職員の技術力の向上に比して、それぞれの機関の自立発展性はまだ十分とはいえないものがある。適正な予算配分とその執行、適正な数と能力をもつ職員の配置、また、環境教

育、情報共有及び協働行動の点での連携体制の確立等は、今後各機関が、プロジェクトの自立発展性を確保していくために真剣に取り組んでいかなければならない事柄である。

プロジェクト関係者の努力で、多くの活動は予定どおり実施されてきているものの、PCSの活動に関しては、大統領選挙後の混乱等がプロジェクトの進捗に大きな影響を与えた。本終了時評価の結果を鑑み、合同評価団では、予定されている成果とプロジェクト目標の達成のために、大統領選挙後の混乱によりPCSでの活動が停滞した期間と同じ5ヵ月間のプロジェクト期間の延長が必要と考える。

第5章 提言

5 - 1 提言

<プロジェクト終了前に取り組まれるべき活動>

(1) プロジェクト期間の延長

2007年12月の大統領選挙後の混乱で専門家が5ヵ月間、現地で活動することができなかったことから、進捗が遅れている成果2に係る活動実施を目的として、プロジェクト期間を5ヵ月延長することが必要と思われる。特に、以下の活動について集中的に技術移転が図られる必要がある。

- ・「工場査察マニュアル」及び「工場廃水対策指導ガイドライン」等の環境管理ツールの活用
- ・「環境影響評価（EIA）レビューガイドライン」の作成と活用
- ・「環境状況報告書」の作成と公開

また、すべての成果について、延長期間中にその自立発展性の確保に努める必要がある。

(2) PCS職員の早急な配置

地方自治省とナクル市役所（MCN）は、必要なトレーニングが延長期間内で修了するよう、汚染管理課（PCS）へのあと2名の職員増員を早急に行うことが求められる。

(3) モニタリング活動に係る予算拠出

3機関の合意文書において、MCNとケニア野生生物公社（KWS）は2008年8月より、ナクル水・衛生有限会社（NAWASSCO）に対してデータ分析等に係る費用を支払うことで合意している。しかし、2008年11月現在、未だ活動に係る費用の多くは、日本側によって負担されているのが現状である。MCNとKWSは、月例会議、及び2008年11月24日に開催された終了時評価ワークショップで合意されたように、2009年1月から活動への予算支出を開始する必要がある。また、そのためには、3者間で2008年12月中に、サンプル採取及び分析に係る費用について合意形成を図ることが重要である。さらに、MCNとKWSによって支払われた費用が、水質試験所（WQTL）の活動にのみ使われるよう、NAWASSCOは2009年1月までに、WQTL用の銀行口座の開設を行うことが求められる。

(4) 供与機材の適切なメンテナンスのための予算措置

NAWASSCOは、供与機材のメンテナンスのために、2009年の予算500万ケニア・シリングから適切な額を拠出することが求められる。

(5) メンテナンス業者の確認

2009年2月までに、NAWASSCOは専門家の協力の下、供与機材のメンテナンスや必要資機材調達のための業者を確認・把握する必要がある。

(6) GISデータベースの活用

関係機関・団体からのデータ提供を受けて構築されたデータベースは既に完成し、各機関

に配布されている。MCN、NAWASSCO及びKWSの各機関は、蓄積されたデータについて、各機関の上層部に逐次報告を行い、データの価値や重要性を理解してもらうことで、GISのソフトウェアのライセンス費用を含む予算措置を講じてもらうよう働きかけを行っていくことが求められる。また、PCSとの連携の下、MCNのタウン・クラーク室が構築されたGISデータベースの管理人となり⁵、国家環境管理委員会（NEMA）を含む関係機関がこのデータベースを有効に活用できるよう関係機関の取りまとめを行っていくことが重要である。さらに、MCN、NAWASSCO及びKWSはデータベースを適宜更新し、その更新内容をこれら3機関を含む他の関係機関とも共有を図っていくことが望まれる。

（7）技術的な持続性の確保

各職員の技術力は、プロジェクト活動を通じてめざましく向上したものの、これらの職員が異動や退職した場合、組織として技術力を維持していくことができるかどうかについては、未だ懸念が残る状況である。そのような事態を念頭に、作成された各種マニュアルやガイドラインが各機関できちんと活用され、新たに配属された職員が滞りなく業務を遂行できるように図っていく必要がある。また、それと同時に、各機関は、適切な資格を有する十分な数の職員が常に配置されているよう努めるべきである。

（8）ナクル湖集水域における環境管理のフォーカル・ポイント

プロジェクトは、ナクル湖集水域で環境活動を展開する各機関・団体の連携体制確立に尽力してきた。プロジェクトが終了するに際し、プロジェクト実施機関であるMCNは、効果的な集水域管理をめざし、同じくナクル湖集水域全般の環境管理に責任を有するNEMAとの連携体制確立を模索する必要がある。終了時評価において開催したワークショップでは、ナクル湖集水域の環境管理のためには、今後はMCNの支援の下、NEMAの役割が重要であることが関係者間で確認された。

（9）環境教育継続のための戦略の考案

PCSは他の政府機関やNGOと連携しながら環境教育を実施してきたが、これまでは、プロジェクトが活動に係るすべての費用を拠出してきているため、今後の活動の展開について懸念が残るところである。よって、PCSは2009年2月までに、今後どのように活動を展開していくかを明確にし、同分野で豊富な経験を有するKWS、MCN教育局、NGOといった関係機関と緊密に連携を取り合いつつ、計画を実施に移していくことが求められる。

< プロジェクト終了後に実施されるべき活動 >

（1）PCSへの適切な資格を有する十分な数の職員の配置

プロジェクト開始以来、PCSの職員の多くが保健省からの出向者で占められている。そのため、せっかく経験を積んでも、これらの職員がいつ保健省へ異動させられるかわからない状況にある。この点を鑑み、地方自治省とMCNはPCSに対し、計画どおり6名のMCN職員の配置を行っていく必要がある。MCN職員を配置することで、移転技術のPCSにおける定着が期待できるからである。さらに、今後のPCSの業務拡張に備え、現在及び将来の業務内容、及び

⁵ 終了時評価で開催したワークショップで確認された。

その業務実施に必要とされる職員数を明確にし、必要な職員数を確保していくことが求められる。

(2) 月例会議の継続

現在、MCN、NAWASSCO及びKWS間で継続的に開催されている月例会議は、相互理解の促進や懸案事項への対処といった点で大きな成果をあげてきている。プロジェクト終了後も、引き続き開催されていくことが強く望まれる。

5 - 2 教 訓

(1) 正式文書の締結

各機関・団体はそれぞれに目的をもち、異なる業務体系を有しているものである。そのため、2機関以上を巻き込んでプロジェクトが行われる場合、その開始前に、それぞれの機関のプロジェクトにおける役割や責任を明確にした文書を正式に取り交わしておくことは、非常に重要と考えられる。本プロジェクトでは、プロジェクト実施中のみならず、終了後における各機関の役割や責任を盛り込んだ合意文書に調印し、各機関のプロジェクト活動への積極的な参加を確保した。

(2) プロジェクト実施機関の業務体制確立のための時間の確保

プロジェクトでは、PCSの業務体制確立のために当初、多くの時間を割いている。適当な執務スペースの提供をMCNから受けるまでに1年半以上を要したとともに、その職員は他の省庁からの出向者で占められていた。PCSにおける業務体制の確立については、PDMにおいて、全くその言及はなく、またそのための活動についても記載されていない。しかし、プロジェクトがPCSの業務体制確立にかなりの時間を割いたこと、かつそのために、PDMに記載された他の活動にかかる時間が削られたことは確かであり、プロジェクト開始前には実施機関の体制及び受入れ能力については慎重な確認を行うとともに、特に新設された組織に対する協力を行う場合には、業務体制の確立には相当な時間が必要となる可能性があることに留意する必要がある。

付 属 資 料

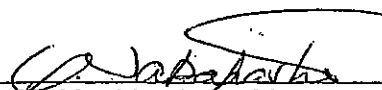
- 1 . ミニッツ
- 2 . インタビュー結果
- 3 . アンケート調査結果

**MINUTES OF MEETINGS
BETWEEN THE JAPANESE TERMINAL EVALUATION TEAM
AND THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE REPUBLIC OF KENYA
ON JAPANESE TECHNICAL COOPERATION
ON THE PROJECT FOR IMPROVEMENT OF ENVIRONMENTAL MANAGEMENT
CAPACITY IN NAKURU MUNICIPALITY AND THE SURROUNDING AREAS
(NEMP)**


The Japanese Terminal Evaluation Team (hereinafter referred to as "the Japanese Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yoshiyuki Takahashi, and the Kenyan Terminal Evaluation Team (hereinafter referred to as "the Kenyan Team") headed by Mr. Julius Mungai conducted a terminal evaluation of the Project for Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Areas (NEMP) (hereinafter referred to as "the Project") from 11th November, to 27th November, 2008 having consultations with the Project personnel and other relevant parties on the implementation of the Japanese Technical Cooperation for the Project.

As a result of a series of surveys and discussions, both sides, the Office of the Deputy Prime Minister and Ministry of Local Government (hereinafter referred to as "MOLG") and Joint Evaluation Team came to the understanding concerning the matters referred to in the report of the Joint Terminal Evaluation, which is attached hereto.

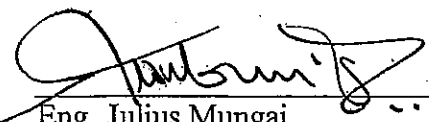
Nakuru, 27th November, 2008




Mr. Yoshiyuki Takahashi
Leader,
Japanese Terminal Evaluation Team,
Japan International Cooperation Agency



Mr. Sammy Kirui, MBS
Permanent Secretary
Office of the Deputy Prime Minister and
Ministry of Local Government
Republic of Kenya

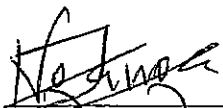


Eng. Julius Mungai
Leader,
Kenyan Terminal Evaluation Team,
Municipal Council of Nakuru




Mr. Sheikh Abdullahi
Town Clerk/NEMP Director
Municipal Council of Nakuru
Republic of Kenya

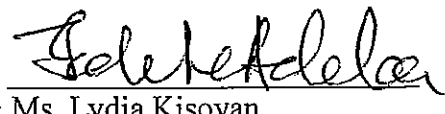
Witnessed by:



Eng. John Cheruiyot
Managing Director
Nakuru Water and Sanitation
Services Co.Ltd



Ms. Ann Kahihia
Assistant Director
Central Rift
Kenya Wildlife Service



Ms. Lydia Kisoyan
Senior Warden
Lake Nakuru National Park
Kenya Wildlife Service

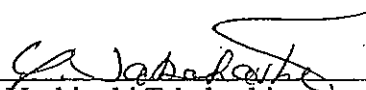
**REPORT OF THE JOINT TERMINAL EVALUATION
ON JAPANESE TECHNICAL COOPERATION
ON THE PROJECT FOR IMPROVEMENT OF ENVIRONMENTAL MANAGEMENT
CAPACITY IN NAKURU MUNICIPALITY AND THE SURROUNDING AREAS
(NEMP)**

The Japanese Terminal Evaluation Team (hereinafter referred to as "the Japanese Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yoshiyuki Takahashi, and the Kenyan Terminal Evaluation Team (hereinafter referred to as "the Kenyan Team") headed by Mr. Julius Mungai conducted a Terminal Evaluation of the Project for Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Areas (hereinafter referred to as "the Project") from 11th November, to 27th November, 2008

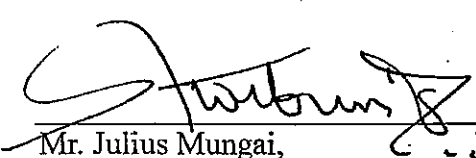
For this purpose, the Japanese Team and the Kenyan Team formed the Joint Evaluation Team (hereinafter referred to as "the Team"). The Team evaluated performance and achievements of the Project through field visits, interviews and had a series of discussions in respect of desirable measures to be taken by the both Governments for the successful implementation of the Project.

The Team agreed on the contents of the Evaluation Report attached. As a result of the discussions, the Team agreed to recommend to their respective Governments the matters referred to in the attached Evaluation Report.

Nakuru, 27th November, 2008



Mr. Yoshiyuki Takahashi
Leader,
Japanese Terminal Evaluation Team,
Japan International Cooperation Agency



Mr. Julius Mungai,
Leader
Kenyan Terminal Evaluation Team,
Municipal Council of Nakuru

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ANNEX

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ABBREVIATION AND ACRONYM

CP	Counterpart Personnel
DOE	Department of Environment
EIA	Environment Impact Assessment
EMCA	Environmental and Management Coordination Act
FY	Fiscal Year
GOK	Government of Kenya
Ksh.	Kenyan Sillings
KWS	Kenya Wildlife Service
JAT	Japanese Advisors Team
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
LNNP	Lake Nakuru National Park
MCN	Municipal Council of Nakuru
MM	Man/Month
MQLG	Office of the Deputy Prime Minister and Ministry of Local Government
MOU	Memorandum of Understanding
NAWASSCO	Nakuru Water and Sanitation Services, Co.Ltd
NEMA	National Environment Management Authority
PCS	Pollution Control Section
PCM	Project Cycle Management
PDM	Project Design Matrix
PO	Plan of Operation
R/D	Record of Discussion
WQTL	Water Quality Testing Laboratory

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1. Introduction

The cooperation on the Project for Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Areas (herein after referred to as "the Project") started in February 2005 as a four-year technical cooperation project signed between Japan International Cooperation Agency (JICA) and the Ministry of Local Government of Kenya (MOLG). In November 2008, three months before the expected completion of the Project, the Joint Evaluation Team composed of both the Japanese and the Kenyan members was formed to undertake the terminal evaluation study.

1.1 Objective of the Evaluation

The objectives of the evaluation are threefold:

- (1) To evaluate accomplishments of the Project based on the five criteria of Relevance, Effectiveness, Efficiency, Impact and Sustainability;
- (2) To make recommendations for activities in remaining period of and after the completion of the Project;
and
- (3) To note lessons learned from the Project.

1.2 Members of the Joint Evaluation Team

The Team consists of the following members.

(1) Kenyan members

- a) Eng. Julius Mungai (Leader)
Municipal Engineer, Department of Municipal Engineer, Municipal Council of Nakuru
- b) Eng. Ephantus Kamau
Engineer, Department of Urban Development, Office of the Deputy Prime Minister and Ministry of Local Government

(2) Japanese members

- a) Mr. Yoshiyuki Takahashi (Leader)
Chief Representative, JICA Kenya office
- b) Ms. Yoko Harada (Evaluation Analysis)
Global Link Management Co., Ltd.
- c) Mr. John N. Ngugi (Evaluation Analysis/Assistant)
Senior Program Officer, JICA Kenya office
- d) Mr. Yoichi Inoue (Evaluation Planning)
Representative, JICA Kenya office

1.3 Schedule of the Study

The Joint Terminal Evaluation was conducted from 11th November to 27th November in 2008. The detailed schedule of the terminal evaluation study is attached in Annex 1-1.



2. Outline of the Project

2.1 Background of the Project

Nakuru Municipality or Nakuru town is the fourth largest city in Kenya with an estimated population of more than 400,000. The town is located about 160km northwest of the capital, Nairobi. Since Kenya's independence in 1963, the town has been experiencing rapid population growth and expansion of economic activities. The urban and peri-urban area in the town has expanded from 89km² to 290km² over the last 30 years and a number of factories are now in operation. As a result, the deterioration of the water-related environment has become one of the major concerns in the town.

The town is situated in the Lake Nakuru watershed which covers 1600 km². Lake Nakuru is famous worldwide for its flamingos and the area around the lake provide diverse habitats for a number of fowls and wild animals. Part of the watershed is a designated Ramsar site. Located at the bottom of a basin with no out-flowing river, the lake receives considerable amounts of water flowing from the catchment and all pollutants are likely to accumulate there. The wastewater discharged in the town is now posing a serious threat to the ecosystem of the watershed.

In cognizant of the problems above, the Municipal Council of Nakuru (MCN) created the Department of Environment (DOE) in 2001 and subsequently, requested the Government of Japan through the Government of Kenya to capacitate the newly created DOE to deal with various environmental issues in the town effectively.

The "Project for Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Area" was launched in February 2005 as a four-year technical cooperation project upon the signing of the Record of Discussion (R/D) between JICA and MOLG on February 10, 2005. In the R/D, MCN was designated as the implementing agency of the Project, while the Nakuru Water and Sanitation Services Co. Ltd. (NAWASSCO) and the Kenya Wildlife Services (KWS) were assigned as collaborating agencies. In February 2007, the Mid-term Evaluation was conducted to assess the progress of the Project and to make the recommendations to achieve the Project Purpose in the remaining project period.

2.2 Summary of the Project

The objectives and outputs of the Project are stated in PDM2 (Annex 1-3) as follows:

- | | |
|------------------|---|
| Overall Goal: | To improve environmental management in the Lake Nakuru Watershed Region |
| Project Purpose: | To improve the water-related environmental management capacity of the Nakuru Municipal Council |
| Outputs: | <ol style="list-style-type: none">1) Credible quality with effective coverage in monitoring is attained.2) Effective environmental management tools and mechanism for enforcement are developed and utilized.3) Cooperation is established among lead organizations and |

stakeholders for the study and actions in the watershed for its better management.

4) Public and private participation in local environment management is enhanced.

3. Methodology of Evaluation

The terminal evaluation was carried out by the Joint Evaluation Team consisting of members from both the Japanese and Kenyan sides as described in 1.2. In the first step of the evaluation, the Team reviewed the progress and achievements of the Project referring to the PDM and Plan of Operation (PO) attached in Annex 1-3 and 1-4. In the next step, the Team analyzed and evaluated the Project from the viewpoints of 'Relevance', 'Effectiveness', 'Efficiency', 'Impact' and 'Sustainability'. Finally, the Team made recommendations for activities in the remaining period of and after the completion of the Project

3.1 Evaluation Questions and Indicators

The study items for evaluation are indicated in the Evaluation Grid, as a grand design of detailed study, attached in Annex 4.

3.2 Data Collection Method and Analysis

3.2.1 Data Collection Method

The Team (1) collected relevant documents, (2) collected information through questionnaires and interviews from government officials, officials from concerned institutions and the Japanese experts and (3) carried out field surveys at the Project sites.

3.2.2 Criteria of Evaluation for Analysis

The evaluation was conducted based on the following five criteria, which are the major points of consideration when assessing the JICA-supported technical cooperation projects.

(1) **Relevance:**

Relevance of the Project was reviewed as the validity of the Project purpose and overall goal in connection with the development policy of the Government of Kenya (hereinafter referred to as GOK) and needs of the beneficiaries, and also by the logical consistency of the Project plan. Simultaneously, correlation with the JICA policies was also confirmed in the process.

(2) **Effectiveness:**

Effectiveness was assessed by evaluating the extent to which the Project has achieved outputs by the time of the terminal evaluation as well as the probability to attain the project purpose by the end of the Project term. Furthermore, validity of the project design was also evaluated.

(3) **Efficiency:**

Efficiency of the Project implementation was analyzed by reviewing correlation between inputs and outputs. In the process, timing, quality and quantity of inputs, linkage and/or duplication between the Project and other activities of other organizations in similar

fields were reviewed.

(4) Impact:

Impacts of the Project activities were identified by focusing both on positive and negative, direct and indirect impacts caused or likely to be caused by the Project. These impacts included the impacts that had not been originally expected in the Project plan. In addition, the probability of attaining the overall goal and the contribution of the Project were evaluated.

(5) Sustainability:

Sustainability of the Project was evaluated on organizational, financial, technical, and social/environmental aspects with consideration of the extent to which the achievement of the Project will be sustained or expanded after the assistance period.

4. Project Performance and Implementation Process

4.1 Accomplishment of the Project

Accomplishment of the Project was measured in terms of Inputs, Activities, Outputs and Project purpose, all of which accord with the R/D, PDM and PO.

4.2 Inputs

(1) Japanese Side

(a) Experts

The Japanese side dispatched three (3) long-term experts and ten (10) short-term experts in various fields over the cooperation period. The total MM for the long-term experts will be 73 MM by the end of the Project. For the short-term experts, the MM by the end of the Project period will be 43 MM. Their names and expertise are listed in Annex 2-1.

(b) Training of Kenyan Counterpart Personnel in Japan

A total of five (5) counterparts were trained in Japan. Their names and expertise are listed in Annex 2-3.

(c) Provision of Equipment

Various equipments were provided by JICA for the effective and smooth implementation of the Project with a total cost of Ksh. 18,132, 344 (approximately equivalent to USD241,099¹). The provided equipment is listed in Annex 2-4.

(d) Operational Cost

The total operational cost supported by the Japanese side as of October 2008 was Ksh. 9,087,993.00 (approximately equivalent to USD 120,836.5) as listed in Annex 2-5.

(2) Kenyan Side

(a) Assignment of Counterpart Personnel

A total of thirty-one (31) counterparts have been assigned for the Project: sixteen

¹ 1 Ksh.= USD75.209 (JICA official rate of November 2008)

(17) from MCN, eight (8) from NAWASSCO and six (6) from KWS. Their names and titles are listed in Annex 2-2.

(b) Budgetary allocation by Kenyan side

The Kenyan side provided part of the operational expenses from the budget allocated to DOE of MCN and KWS/Lake Nakuru National Park (LNNP). No detailed figure is available.

(c) Provision of land, office spaces and facilities

The Kenyan side provided the following facilities:

- Land, office space and necessary facilities for the Project's head office in MCN
- Meeting rooms in KWS, Nakuru
- Facilities necessary to conduct water quality monitoring analysis in WQTL
- Electricity, water supply and telecommunication services in MCN and WQTL

(d) Others

KWS provided rangers to accompany WQTL staff carrying out in the monitoring activities in LNNP.

4.3 Activities

In total of twenty-three (23) activities were planned as stated in PDM2 as follows.

(1) Credible quality with effective coverage in monitoring is attained.

- 1.1. Compile the available monitoring data.
- 1.2. Plan a routine monitoring program
- 1.3. Develop a special-purpose monitoring program in a partnership with lead organizations
- 1.4. Improve laboratory facilities according to the planned routine monitoring program
- 1.5. Conduct the routine monitoring
- 1.6. Conduct a special-purpose monitoring program in partnership with lead organizations
- 1.7. Conduct training for water quality monitoring
- 1.8. Establish database for water quality monitoring
- 1.9. Conduct a training for database management
- 1.10. Review routine monitoring program
- 1.11. Review special-purpose monitoring program
- 1.12. Evaluate performance in monitoring program

(2) Effective environmental management tools and mechanism for enforcement are developed and utilized.

- 2.1. Plan and conduct training for water environmental management
- 2.2. Develop environmental management tools
- 2.3. Establish an integrated water quality monitoring database

(3) Cooperation is established among lead organizations and stakeholders for the study and actions in the watershed for its better management

- 3.1. Develop a scope of study

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- 3.2. Collect and compile the available data regarding watershed
 - 3.3. Develop a GIS database for water quality management in watershed
 - 3.4. Conduct analysis of watershed based on available data in an integrated manner
 - 3.5. Coordinate stakeholders to explore pragmatic and sustainable action for watershed
- (4) Public and private participation in local environmental management is enhanced.
- 4.1. Develop public outreach programs
 - 4.2. Enhance the capacity of staff for public outreach
 - 4.3. Develop information, education and communication materials

The progress of each activity is summarized in Annex 4-1.

4.4 Outputs

The achievement of the expected outputs as of the time of the Terminal Evaluation study is positive as follows:

Output 1: Credible quality with effective coverage in monitoring is attained.

The target indicators have been attained. The Water Quality Testing Laboratory (WQTL) under NAWASSCO developed the regular and special-purpose monitoring programmes in collaboration with MCN and KWS, and finalized them in March 2006. Although the post-election unrest as well as some disagreement between NAWASSCO and KWS suspended the WQTL's monitoring activities for some time, as of August 2008 more than 4,300 samples had been collected and analyzed after the commencement of the Project. This is an average of 100 samples per month. WQTL is now able to analyze the parameters of heavy metal in addition to the physio-chemical and biological parameters. A total of 45 parameters are analyzed as indicated in Annex 3-1. The samples are collected at water sources and tap water, storm water drains, sewerage, factories, lakes and rivers throughout the town as well as inside and outside the LNNP. The regular monitoring program prepared in March 2006 was recently revised, reflecting the actual needs on the ground and the available budget.

The accreditation of WQTL was approved in September 2008 and is listed for the gasettement by the National Environment Management Authority (NEMA). The accreditation of WQTL will facilitate the enforcement process undertaken by PCS.

Output 2: Effective environmental management tools and mechanism for enforcement are developed and utilized.

Both OJT and off-JT have been organized for the development and operation of database, water quality standards, factory inspection, lake management, etc. As of October

2008 a total of 78 staff from MCN, NAWASSCO and KWS participated in 12 training programmes (See Annex 3-2). Along with the technical development of the staff, the environmental management tools have been prepared; the "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment". Between October 2007, when the draft "Factory Inspection Manual" was prepared, and July 2008, a total of 25 compliance sampling inspections were undertaken by PCS referring to the draft manual. However, due to the lack of personnel, these tools have not been fully utilized. In addition, the preparation of the "State of Environment" and the "EIA Review Guideline" has been delayed.

The total number of the factory inspections conducted by PCS in 2007 was approximately 130. In 2008 the post-election unrest and the limited number of PCS staff has negatively affected its frequency and this number dropped to 36 as of August 2008. The major factories operating in Nakuru is 18 and their compliance rate between 2005 and 2008 was 0%, 69.2%, 38.5% and 15.4% respectively (Annex 3-3). The reasons for the lower compliance rates in 2007 and 2008 are most likely to be attributed to the better detection capacity of PCS and WQTL among other reasons. Since the Project commenced, the average number of notices issued to those factories which fail to comply with criteria set by NEMA is ten per month. MCN took legal action against seven factories in 2007 and three in 2008 for failure to improve their performance within a reasonable period of time after the notices were issued.

With regard to the Output 2, the progress of the activities has been delayed. In response to JICA's strong recommendation to increase the number of CP in PCS, MOLG and MCN confirmed in October 2008 that some new staff will be deployed to PCS. Since the planned termination of the Project is only three months away, it is unlikely for the Project to train them adequately before then.

Output 3: Cooperation is established among lead organizations and stakeholders for the study and actions in the watershed for its better management.

The Project has been actively working to build the partnership for Lake Nakuru watershed management. Under the leadership of the Project, relevant data was collected from MCN/DOE (Nakuru Local Urban Observatory Project: LUO Project funded by Switzerland), NAWASSCO, KWS and the Egerton University (Sustainable Management of Watershed (SUMAWA) Project funded by USAID) with the aim of developing a comprehensive GIS database covering the whole Lake Nakuru Catchment. The collected data included rainfall, land use, altitude, river position and its water volume, geological map and road network as well as the results of water quality monitoring data collected and analyzed in the Project and satellite imageries. The creation of database was completed in July 2008. In addition, the hydrological and water pollution analysis module was prepared for formulation of an action plan for the environmental management of Lake Nakuru

Catchment.

In the creation of the GIS database above, a series of meetings/seminars were organized, inviting MCN, NAWASSCO, KWS, the Egerton University and NGO, to exchange information as well as to facilitate the cooperation among the stakeholders. In February 2007 and June 2008 seminars on environmental management of Lake Nakuru Catchment were organized to facilitate cooperation in pollution control in the catchment. In October 2008 the workshop on Mau Spatial Data Infrastructure was co-funded by the Project and other funding agencies such as ERMIS Africa to create mutual understanding to establish the Mau Spatial Data Infrastructure and Data Clearing House with stakeholders. Further to that, the Project is planning to organize another seminar in February 2009 to formulate a road map for a comprehensive approach for environmental management of the catchment.

Output 4: Public and private participation in local environment management is enhanced.

A number of initiatives have been made by the Project to create a linkage between public and private sectors for environmental management. An information center was established at the Nakuru branch of the Kenya National Library Services in collaboration with the library, MCN and NGOs for the dissemination of environmental information. Six workshops were held with the participation of approximately 600 residents and their proceedings were compiled into two publications. 206 children and 207 school management committee members from 78 primary schools in the municipality participated in a series of workshops on raising environmental awareness while 47 children and 26 teachers from 22 primary schools attended the water quality testing program. Both activities were organized by the Project. In addition, primary school teachers from different schools in the municipality were involved in the preparation of a booklet on water and the Project produced other educational materials as well as indicated in Annex 3-4.

4.5 Project Purpose

It is necessary the Project be extended by five months in order to complete all the activities in Output 2 so as to achieve the Project purpose.

4.5.1 Indicator 1: Utilization of monitoring data

The monitoring data analyzed by WQTL is reported back to the PCS and KWS. The three organizations, namely PCS, NAWASSCO and KWS, have been effectively utilizing the analyzed data for the execution of their duties. NAWASSCO which is responsible for the sewerage and potable water of the town has been using the data to maintain acceptable water quality for drinking as well as to assess the effectiveness of the sewerage treatment process. KWS is accumulating the data to maintain the standards for acceptable habitat for wildlife and PCS uses it to enforce regulations on polluters. It is expected that the accreditation of WQTL will facilitate the enforcement process undertaken by PCS and the monitoring data will be more widely used for such purposes.

4.5.2 Indicator 2: Degree of improvement and enhancement of GIS database contents

The GIS DB was created with a wide range of information collected from different organizations. It is the most comprehensive GIS DB available for the Lake Nakuru Catchment. The DB has been distributed by MCN to KWS, NAWASSCO, Egerton University and NEMA.

4.5.3 Indicator 3: Utilization of environmental management tools (manuals, reports, etc.)

The "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment" were prepared as the environmental management tools to be utilized by PCS in effluent monitoring. Although 25 factory inspections were conducted, referring to the "Factory Inspection Manual" between October 2007 and July 2008, due to the lack of the personnel available, both tools have not been fully utilized. In addition, the preparation of the "State of Environment" and "EIA Review Guideline" has been delayed. Since new personnel have been assigned to PCS from October 2008, the Project needs some more time to train them to properly utilize the tools including those that will be prepared in the coming months.

4.5.4 Indicator 4: Degree of dissemination of materials developed for environmental awareness

2000 copies of the booklet on water environment targeting school children have been distributed to primary schools, the Nakuru Environmental Resource Center attached to the Nakuru branch of the National Library, KWS, NAWASSCO and other relevant organizations.

4.6 Implementation Process

4.6.1 Progress of the Activities

At the inception period, the Project spent a substantial period of time for the physical establishment of PCS and the coordination among the three organizations. Since PCS was a newly created section, the Project provided it with equipment necessary for its operations. At the same time, the capacity of staff seconded from the Ministry of Health to PCS had to be developed further.

The Project also allocated a considerable time to the conclusion of the Memorandum of Understanding² (MOU) between MCN, NAWASSCO and KWS, which would serve as a framework of the collaboration of three parties in water quality monitoring in Nakuru. The MOU was signed in April 2007 after intense negotiations. The conclusion of the MOU is a remarkable achievement of the Project with regard to streamlining the monitoring activities that used to be undertaken by each organization with little coordination.

While these two activities put the Project on track, there were also some factors which had substantial negative impacts on the Project progress. One was the post-election turmoil which affected the first half year of 2008 throughout the country. No expert was allowed to stay or even visit the project area over a period of several months due to security considerations. In addition, the staff found it extremely difficult to undertake routine monitoring in areas where the situation was volatile. The other was the insufficient number of PCS staff. Since the number of staff was never adequate to undertake the planned activities, especially since November 2007 when two core staff were returned to the Ministry

² The Memorandum of Understanding on Cooperation in Water Quality Monitoring and Control through Implementation and Furtherance of NEMP between Kenya Wildlife Service, Nakuru Water and Sanitation Services Company Limited and Municipal Council of Nakuru

of Health, a significant delay in the activities have been observed. Two PCS CPs trained in Japan were suddenly transferred back to the Ministry of Health on 30th October 2007. In October 2008, MOLG and MCN confirmed the deployment of four more staff to PCS. However, the new staff will require training which is likely to continue beyond February 2009 when termination of the Project is planned.

4.6.2 Management of the Project

(1) Meetings

Monthly tripartite meetings have been held among MCN/DOE, MCN/Department of Public Health, KWS/LNNP, NAWASSCO/WQTL and Japanese experts since May 2005. NEMA and the Egerton University participate in the meetings as observers.

(2) Monitoring

The progress and the problems of daily activities are shared and discussed in the Tripartite Coordination Meeting held monthly. With regard to the Output 1, the Project developed a checklist reflecting the ISO17025 framework, against which the progress is monitored every quarter.

4.6.3 Ownership of the Project by Executing Institution

(1) Assignment of Counterparts

The number of CP assigned in PCS was a hanging agenda almost throughout the project period. Although it was agreed in R/D that ten CP from DOE would be assigned to the Project, only two were actually assigned at the commencement of the Project. The number increased to six in April 2006 but again went back to two in November 2007. Although in November 2008 MCN assigned four more staff to PCS, the activities of the Project have been adversely affected with insufficient number of CP in PCS.

All the WQTL staff have remained in the Project throughout the Project period. This significantly contributed to the enhancement of their technical capability as well as the smooth implementation of the planned activities.

(2) Capacity of Counterparts

The technical capability of WQTL staff has been notably enhanced and is generally become sufficient for them to undertake their assignments. In the case of PCS, the technical capacity of CP has been greatly enhanced but some more training is required for them to be fully capacitated to carry out their assignments. Overall, 2 CP from WQTL and 3 from PCS participated in counterpart training in Japan. However, out of the 3 from PCS, 1 was transferred back to the Ministry of Health.

(3) Budget

Most of the Project budgets have been provided by the Japanese side throughout the Project period. Although it was agreed in the MOU signed in April 2007 that MCN, NAWASSCO and KWS would disburse sufficient budget to undertake the water quality monitoring activities starting from August 2008, as of November 2008 their actual budget disbursement is nominal.

5. Evaluation by Five Criteria

5.1 Relevance

5.1.1 Consistency with the development policy of Kenya

The Project objectives are still consistent with the environment and development policies of Kenya. The Environmental Management and Coordination Act (EMCA) enacted in 1999 promotes the decentralization of environmental management to local administrative bodies and stipulates the importance of their capacity development to deal with the issues properly. It also strongly empowers local authorities to engage in law enforcement. In line with the EMCA, MCN announced the enactment of the Environmental Management By-laws in April 2007 after the approval of the Minister of Local Government with the aim of facilitating the effective environmental management within the municipality.

5.1.2 Consistency with the aid policy of Japan

The promotion of environment conservation is one of the most important areas of cooperation in Japan's ODA policy. In particular, the improvement of water-related environment is strongly advocated. Furthermore, the JICA's Country Strategy revised in August 2006 regards the environmental conservation as one of the five pillars of assistance to Kenya.

5.1.3 Needs of target groups

The deterioration of the water-related environment in the region has become a serious threat to the wellbeing of the people as well as the wildlife inhabiting the region. While MCN was expected to play a significant role in the preservation and rehabilitation of the environment in the municipality, it lacked both the physical and technical capacity to undertake such responsibilities and hence was not able to proper action on the problems. In view of this, the Project was designed to enhance the capacity of MCN in the crucial areas of law enforcement, environmental education and partnership building. In that case, the Project is considered to conform to the needs of target group.

5.1.4 Appropriateness of strategy/approach

The mitigation of further deterioration of the water-related environment within the Nakuru municipality including the LNNP requires appropriate management and control of wastewater in Nakuru town with the involvement of all stakeholders. The Project has facilitated partnership building among the major stakeholders working on environmental issues in the region as well as capacity development of the major players. In cognizant of the various constraints each stakeholder faces and the interdependency of their mandates, this approach is appropriate in the efficient and effective utilization of available resources in the region for proper environmental management.

5.2 Effectiveness

5.2.1 Possibility of realization of the Project purpose

The Project Purpose is likely to be achieved provided that the Project is extended by five months as described in 4.5 above.

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5.2.2 Constraints for achieving the Project Purpose

Due to the post-election turmoil, implementation of some activities, especially those under Output 2, has been delayed. In addition, the lack of personnel in PCS hampered the progress of the Project. Since new staff will be/have been deployed to PCS, their training should start immediately so that the implementation of the delayed activities can be facilitated.

5.3 Efficiency

5.3.1 Adequacy of activities and inputs to realize the outputs

The Project spent a considerable period of time for the physical establishment of PCS and the coordination among three organizations although these were not specifically identified as "activities" in the PDM. Other than that, the planned activities were sufficient to produce the outputs. Both the technical and administrative capacity of WQTL has been greatly enhanced which not only enables the achievement of Output 1 but also greatly contributed to the realization of other outputs through the provision of reliable analyzed data for the concerned organizations. On the other hand, more time is required to complete some activities in order to achieve Output 2. With regard to the inputs, these were generally adequate to realize the Outputs, except for the fewer number of CP in PCS than that agreed in R/D.

5.3.2 Appropriateness of number of Japanese experts, their fields, timing of placement and terms

In general, the Japanese inputs were appropriate in quality, quantity and timeliness with regard to the realization of the expected outputs as well as the achievement of the Project Purpose. In spite of what is stipulated in the R/D, a chief advisor was regrettably not assigned on a long-term basis.

5.3.3 Appropriateness of kinds of equipment, their quantities and timing of supply

The types and quantities of the equipment were decided aiming at the accreditation of WQTL by NEMA. In this regard, the provided equipment was appropriate. NAWASSCO is planning to allocate sufficient funds for maintenance so that the equipment can be kept in a good and operational condition.

5.4 Impact

5.4.1 Possibility to realize the Overall goal

The prospect to achieve the overall goal is positive. A number of projects and activities on the environmental management have been taking place in the Lake Nakuru Catchment. Those organizations and agencies that are working for environmental issues in Nakuru and the surrounding areas have come together and formed the forums to share information and to discuss issues and problems related to their activities such as "Nakuru District Environment Committee", "Nakuru Environmental Consortium" and "Mau Spatial

Data Infrastructure". However, the cooperation among these organizations could be further strengthened to enhance the effectiveness and efficiency of the activities which each organization is implementing. The Project has made some contributions to the strengthening of the linkages among these stakeholders through the organization of seminars and the creation of the GIS DB. Since the jurisdiction of MCN is within the boundary of the Nakuru municipality, MCN needs to collaborate with NEMA, who is mandated to deal with environmental issues throughout the district including the catchment. For NEMA to effectively coordinate the stakeholders, the enhancement of their capacity is required.

5.4.2 Ripple effect

MCN and WQTL offer internship for university students, who also benefit from the technologies transferred through the Project. Furthermore, in preparation of the outreach programmes, PCS successfully established link with the Department of Education of MCN.

5.5 Sustainability

5.5.1 Institution and Organization

MCN established the DOE and enacted the Environmental Management By-laws to effectively implement their duties with regard to the environmental management. It is therefore highly likely that MCN will continue to work for the preservation and rehabilitation of the environment within the municipality in collaboration with other stakeholders. The present number of PCS staff is not adequate for undertaking all the responsibilities of the section. Therefore, two more staff members should be immediately deployed as officially confirmed by the letter sent by MOLG' letter dated 31st October 2008. In addition, to continuously organize the outreach programmes, PCS needs to work out some collaboration mechanism with other stakeholders involved in such endeavors.

NAWASSCO is now highly aware of the importance of WQTL in the execution of their mandate. In addition, the accreditation of WQTL will enhance its credibility as a laboratory. It is, therefore, highly likely that WQTL will continue with or even expand its present operations.

The cooperation among MCN, NAWASSCO and KWS is likely to be sustained because they are now highly aware of the importance of regular water quality monitoring as well as the need for collaboration among themselves. In order to maintain this collaboration, the financial arrangements concerning WQTL should be implemented immediately.

5.5.2 Finance

(Monitoring Activities)

The MOU signed in April 2007 explicitly stipulates the financial responsibilities of the three organizations with regard to water quality monitoring. In line with this, MCN has allocated Ksh. 1.4 million for the analysis of industrial effluent for FY 2008/09, which is a considerable increase from the Ksh. 0.5 million allocated for the previous FY. KWS has

budgeted Ksh. 40,000 for the monitoring activities each month and previously KWS was paying for lunch allowances for WQTL staff when they carried out the monitoring activities in LNNP as had been agreed between them. NAWASSCO is also planning to allocate Ksh. 5 million to the operation and maintenance of WQTL for 2009. In addition, it was agreed upon in the MOU that NAWASSCO will be paid by MCN and KWS for services rendered by WQTL. Provided that all the budgeted amounts are disbursed accordingly, most activities carried out under the Project are likely to be continued. However, up to November 2008, the actual budget disbursed was nominal although it had been agreed that each organization would start the disbursement of the budget allocated to the monitoring activities from August 2008. Because the Project has financed almost all the expenses related to the water quality monitoring and analysis for the last three years, the monitoring activity of MCN and KWS may be seriously affected unless each organization honours its responsibilities as agreed upon in the MOU and reaches a workable consensus regarding the charges for the services.

(Environmental Education)

The outreach programmes organized under Output 4 have been exclusively financed by the Project. Some arrangement is required for the programmes to be duly continued.

5.5.3 Technology

(WQTL)

The transferred technologies have been well adopted by the laboratory staff. Their level of knowledge and skills in sampling, analysis and laboratory management has been remarkably improved since the commencement of the Project. Their technical capacity is sufficient to continuously undertake the present activities. However, in case of transfer or turn-over of one of the two technologists, the WQTL activities may be seriously affected.

(PCS-Factory Inspection)

The staff have sufficiently improved their understanding of the enforcement process. They can therefore undertake factory inspection, referring to the guidelines and the manual prepared by the Project as environmental management tools. Their technical capacity has been greatly enhanced but further training is required for them to be fully capacitated to undertake their assignments. Furthermore, the number of staff is at a minimum and they can not undertake all the responsibilities related to factory inspection and law enforcement within the municipality. Recently, new staff joined in the PCS in response to the strong recommendation by JICA to increase the number of staff as agreed upon in the R/D. The training of the new staff should be duly conducted to enable PCS to properly undertake their duties.

(PCS-Environmental Education)

The outreach programmes under Output 4 were organized by PCS in collaboration with NGOs and the other government offices. Taking into consideration the number of staff, their expertise on environmental education and availability of budget, it is recommended that PCS continues to organize more programmes and establishes stronger collaboration with other organizations.

6. Conclusion

The Project has been working towards the improvement of the water-related environmental management capacity of MCN and the collaborating organizations. The Project contributed to not only the enhancement of the technical capacity of the assigned staff but also the physical establishment of PCS and the development of a partnership between the three organizations. In this regard, the Project deserves sincere acknowledgement. Now more than ever three organizations are aware of the importance of water quality monitoring as well as the need for cooperation among them so as to effectively execute their mandates. Their level of communication has also been notably enhanced.

Although the technical capacity of individual staff members has been greatly enhanced, there is a lot of room for improvement with regard to institutional establishment and sustainability aspects. The budget allocation and disbursement, assignment of sufficient number of qualified staff, the establishment of the mechanism for cooperation in environmental education, information sharing, and collective action are some of the issues that need to be seriously examined by each organization.

While the Project team members exerted efforts to carry out the activities as planned, the Project has faced various constraints resulting from issues such as the post-election turmoil. Taking into consideration the outcomes of the Terminal Evaluation Study, the Joint Evaluation Team concludes that the Project Purpose is likely to be achieved provided that the Project period is extended by five months.

7. Recommendations

Before the Completion of the Project

(1) Extension of the Project period

The Project period should be extended by 5 months for Output 2 only because the experts were not able to work in Nakuru for five months after the December 2007 general elections. The activities under Output 2 have also been lagging behind schedule due to the lack of personnel in PCS as well as the post-election turmoil. It has been confirmed by MOLG and MCN that the new staff be deployed to PCS immediately. In view of this, under Output 2 the Project should focus on the technical transfer of the following activities during the extension period:

- Utilization of the prepared environmental management tools such as the "Factory Inspection Manual" and "Guidelines for Industrial Effluent Treatment"
- Preparation and utilization of the "EIA Review Guidelines"
- Preparation and dissemination of the "State of Environment"

In addition, it is important for the Project to allocate some time to ensure the sustainability of activities under all Outputs.

(2) Immediate deployment of PCS staff

As agreed, MOLG and MCN should take immediate action to deploy two more staff so that they will have a sufficient time to be trained.

(3) Financial arrangement regarding monitoring activities

In the MOU, KWS and MCN agreed to disburse payments for the services rendered by NAWASSCO in water quality monitoring and analysis starting from August 2008. However, by November 2008, the Project is still financing almost all the expenses incurred for these activities. MCN and KWS should start disbursement of their allocated budgets from January, 2009 as agreed in the tripartite meetings and confirmed during the Terminal Evaluation Study Workshop held on 24th November 2008. In this regard, by the end of December, 2008, the three organizations should agree on the preferential rate for water quality monitoring and analysis services rendered by NAWASSCO. Furthermore, NAWASSCO shall open a bank account for WQTL by the end of January 2009 to be used solely to deposit payments made by MCN and KWS. The fees to be collected from MCN and KWS will be utilized for operation and management of WQTL.

(4) Allocation of budget sufficient for the maintenance of the provided equipment

In addition to the budget set aside for the monitoring activities, NAWASSCO should undertake proper maintenance for the provided equipment, utilizing the budget of Ksh. 5 million allocated for 2009.

(5) Confirmation of service agencies

NAWASSCO and JAT should confirm where to procure spare parts and consumables for the provided equipment by February 2009.

(6) Utilization of GIS DB

The GIS DB was created by the Project in collaboration with other stakeholders and has already been distributed to them for utilization. The data accumulated by each organization should be disseminated to their management so that the management is aware of its importance and hence allocates the necessary budget for the effective utilization of the GIS DB including the acquisition of the GIS software licenses. The MCN/Town Clerk's Department in collaboration with PCS should be a custodian of the GIS DB and work with the other stakeholders including NEMA in its effective utilization. MCN, NAWASSCO and KWS should update the information and share it among themselves as well as other organizations engaged in the environmental management of the watershed.

(7) Technical sustainability

Although the technical capacity of individual staff has been substantially enhanced, there will always be concern regarding the possibility of transfer or turn-over of the trained and experienced staff. The prepared manuals and guidelines should therefore be in use so that new staff members will be properly guided should any core staff leave. MCN/PCS, NAWASSCO/WQTL and KWS should confirm the adequate number of qualified staff that should be assigned.

(8) Focal point for the environmental management of Lake Nakuru Catchment

The Project has been working for development of partnerships among those organizations

that are working for the preservation and rehabilitation of the environment in the Lake Nakuru catchment. In this regard, MCN as an implementing agency of the Project should seek the collaboration with NEMA in the effective environmental management of the Catchment.

- (9) Formulation of a workable strategy for the continuation of outreach programmes
- PCS has been implementing the outreach programmes in collaboration with other governmental offices and NGOs. These activities have been exclusively financed by the Project and at present, it is uncertain how PCS can continue implementing them in future. PCS should therefore identify the way forward by February, 2009 and take the lead to organize the programme in close collaboration with KWS, Department of Education/MCN and NGOs.

After the Completion of the Project

- (1) Assignment of adequate number of qualified permanent staff to PCS
- Since the commencement of the Project, most staff assigned to PCS were seconded from the Ministry of Public Health and Sanitation³. There is therefore always a concern that the experienced staff may be transferred back to this Ministry at any time. MOLG and MCN should try to recruit six qualified permanent staff in total for PCS so that the experience and expertise will be retained in PCS. In line with this, MCN should formulate an organizational structure of PCS indicating the staff requirements and the current and future job descriptions.
- (2) Continuation of monthly tripartite meeting
- The monthly tripartite meeting has been offering a good avenue for the organizations to arrive at a mutual understanding and to address problems in a collective manner. This should therefore be continued after the completion of the Project.

8. Lessons learnt

- (1) Importance of conclusion of a formal agreement
- Each organization has its own mandate and working modalities. Therefore, in any project requiring the involvement of more than one organization, it is recommended that a formal agreement be concluded to clarify the roles and responsibilities of each organization in the project before it commences. Such agreement will assure the commitment and the involvement of the institutes. A memorandum of understanding concluded by three organizations of MCN, NAWASSCO and KWS stipulates their roles and responsibilities within the framework of the Project as well as after the completion of the Project. In addition, their respective commitment towards the Project's activities is reiterated.

³ The Ministry of Health was restructured into the Ministry of Public Health and Sanitation and the Ministry of Medical Services in April 2008.

(2) Time for Physical Set-up of the CP organization

The Project started with the physical establishment of PCS. No proper office was allocated to the Project for a period of more than one and half years after commencement. At the same time, most staff were seconded from another ministry. Although no activity was indicated in PDM for the office set-up of PCS, it is obvious that the Project spent a substantial period of time to this purpose and the time for the activities indicated in the PDM was consequently squeezed. It is therefore important to allocate enough time for the physical set-up of the CP organization before the commencement of the project.

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Schedule of Japanese Evaluation Team

	Date		Activities
1	9. Nov.	Sun	Departure from Tokyo (Consultant)
2	10. Nov.	Mon	Arrival at Nairobi
3	11. Nov.	Tue	08:30 Meeting in JICA Kenya 14:00 Courtesy Call to Permanent Secretary of MOLG Nairobi → Nakuru
4	12. Nov.	Wed	09:00 Courtesy Call to Deputy Town Clerk of MCN 10:00 Courtesy Call to Senior Warden of KWS 12:00 Observation of WQTL 14:00 Discussion with Director of DOE 16:00 Courtesy Call to Managing Director of NAWASSCO 17:00 Interview with JAT
5	13. Nov.	Thu	11:00 Interview in KWS 14:00 Interview in WQTL 16:00 Interview in NAWASSCO
6	14. Nov.	Fri	08:30 Interview in PCS 14:00 Interview Flamingo Net 17:00 Interview KWS staff
7	15. Nov.	Sat	08:30 Interview WQTL staff 14:00 Interview WQTL staff 16:00 Interview JAT
8	16. Nov.	Sun	10:30 Interview SCEP
9	17. Nov.	Mon	08:30 Interview Department of Education 10:00 Interview SUMAWA Project 14:30 Interview KWS staff 15:30 Interview Luo Project
10	18. Nov.	Tue	08:30 Interview Deputy Director of DOE, MCN 10:00 Interview Director of Environment, MCN 11:00 Interview NAWASSCO staff 15:00 Interview JAT
11	19. Nov.	Wed	09:00 Interview in NEMA
12	20. Nov.	Thu	Internal Meeting
13	21. Nov.	Fri	Preparation for Workshop and Evaluation Report
14	22. Nov.	Sat	Preparation for Workshop and Evaluation Report
15	23. Nov.	Sun	Preparation for Workshop and Evaluation Report / Internal Meeting
16	24. Nov.	Mon	Workshop
17	25. Nov.	Tue	Discussion on the Minutes of Meeting and Evaluation Report
18	26. Nov.	Wed	Discussion on the Minutes of Meeting and Evaluation Report
19	27. Nov.	Thu	Joint Coordination Committee Signing of Minutes of Meeting Nakuru → Nairobi
20	28. Nov.	Fri	departure from Nairobi (Consultant)

National Environment Management Authority

Ms. Sally Kibos

District Environment Officer

Department of Education/MCN

Ms. Josephine Ondieki

Deputy Municipal Quality Assurance and Standard Officer

Egerton University/SUMAWA Project

Dr. Patterson Semenyé

Project Coordinator

Flamingo Net (Local NGO)

Mr. Jackson Raini

Chief Executive Officer

Sustainable Community Environment Programme (Local NGO)

Mr. Jonathan Kimuge

Chief Executive Officer

Nakuru Local Urban Observatory Project (Luo Project)

Mr. Solomon Mbugua

Japanese Experts

Mr. Toshiyuki Ujiié

Chief Advisor

Mr. Shigeo Watanabe

Coordinator

Ms. Kyoko Usuda

Database Development

Mr. Shunsuke Hieda

Water Pollution Analysis

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Project Design Matrix (PDM)-2

Project Name:

NEMP (Improvement of Environmental Management Capacity in Nakuru Municipality and Surrounding Areas)

Implementing Agency: Municipal Council of Nakuru (MCN)

Duration: Feb 2005 – Feb 2009 (4years)

Target Region: Kenya, East Africa

Project Site: Nakuru, Kenya

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal To improve environmental management in the Lake Nakuru Watershed Region</p>	<ul style="list-style-type: none"> - Number of activities of environmental management in the watershed region - Coverage of activities related to environmental management (water, waste, forest, environmental awareness) - Level of partnership among environment-related activities 	<ul style="list-style-type: none"> - MCN environmental statement reports - Activity reports of NGO in Nakuru - Research paper published by research institutes - Interview surveys with stakeholders and residents 	<ul style="list-style-type: none"> - Government policy on environmental management remains consistent
<p>Project Purpose To improve the water-related environmental management capacity of the Nakuru Municipal Council</p>	<ul style="list-style-type: none"> - Utilization of monitoring data, - Degree of improvement and enhancement of GIS database contents - Utilization of environmental management tools (manuals, reports, etc...) - Degree of dissemination of materials developed for environmental awareness - Number of samples and range of parameters measured - Accreditation of laboratory by NEMA or any other recognized authorities 	<ul style="list-style-type: none"> - Evaluation reports within the Project - Internal performance reports - Interview and sample surveys with stakeholders and residents 	<ul style="list-style-type: none"> - MCN and the lead organizations retain their legal mandates on environmental management
<p>Output 1 Credible quality with effective coverage in monitoring is attained</p>	<ul style="list-style-type: none"> - Coverage of database. - Number of staff trained. - Number of monitored facilities and critical points. - Rate of compliance of businesses in pollution control and actions taken - Number and scope of management tools (e.g. manuals, reports). 	<ul style="list-style-type: none"> - Evaluation reports within the Project - Internal performance reports - Progress toward accreditation 	<ul style="list-style-type: none"> - Lead organizations maintain their cooperation to the project.
<p>Output 2 Effective environmental management tools and mechanism for enforcement are developed and utilized.</p>	<ul style="list-style-type: none"> - Coverage of GIS database and its accessibility. - Scope of explored actions - Degree of resource allocation for watershed management among lead organizations and stakeholders 	<ul style="list-style-type: none"> - Evaluation reports within the Project - Internal performance reports - Inventory of management tools - Number of cases filed 	
<p>Output 3 Cooperation is established among lead organizations and stakeholders for the study and actions in the watershed for its better management.</p>	<ul style="list-style-type: none"> - Number and scope of local initiatives - Number and scope of citizen participation - Number and scope of developed materials 	<ul style="list-style-type: none"> - Evaluation reports within the Project - Records at District Environmental Committee (DEC) meetings and other forums. 	
<p>Output 4 Public and private participation in local environmental management is enhanced.</p>	<ul style="list-style-type: none"> - Inventory of developed materials. 	<ul style="list-style-type: none"> - Evaluation reports within the Project - Internal performance reports - Inventory of developed materials. 	

Submitted to the 3rd JCC 16/Feb/2007

Activities	Inputs		Pre-conditions
<p>1 <u>Develop routine and special-purpose monitoring programmes</u></p> <p>1.1 Compile the available monitoring data</p> <p>1.2 Plan a routine monitoring programme</p> <p>1.3 Develop a special-purpose monitoring programme in a partnership with lead organizations.</p> <p>1.4 Improve the lab facilities according to the planned routine monitoring programme</p> <p>1.5 Conduct the routine monitoring</p> <p>1.6 conduct a special-purpose monitoring programme in partnership with lead Organizations</p> <p>1.7 Conduct trainings for water quality monitoring</p> <p>1.8 Establish databases for water quality monitoring</p> <p>1.9 Conduct trainings for database management</p> <p>1.10 Review the routine monitoring programme</p> <p>1.11 Review the special-purpose monitoring programme</p> <p>1.12 Evaluate the performances in the monitoring programmes</p>	<p><u>Japanese Side</u></p> <ul style="list-style-type: none"> - Long-term expert (\$) - Short-term expert (\$) - Training(s) - Study(s) - Equipment - Evaluations 	<p><u>Kenyan Side</u></p> <ul style="list-style-type: none"> - Counterpart personnel - Office facilities and materials - Recurrent budget 	<ul style="list-style-type: none"> - MCN has the capability to implement the project.
<p>2 <u>Develop management framework for monitoring and enforcement</u></p> <p>2.1 Conduct trainings for environmental management</p> <p>2.2 Develop environmental management tools (state of water environment reports, manuals, etc)</p> <p>2.3 <u>Establish an integrated water quality monitoring database</u></p>			
<p>3 <u>Carry out an integrated analytical study of Lake Nakuru watershed management in a partnership with lead organizations</u></p> <p>3.1 <u>Develop a scope of the study</u></p> <p>3.2 Collect and compile the available data regarding watershed</p> <p>3.3 Develop a GIS database for water quality management in the watershed</p> <p>3.4 Conduct an analysis of watershed based available data in an integrated manner</p> <p>3.5 Coordinate stakeholders to explore pragmatic and sustainable actions for watershed management</p>			
<p>4 <u>Encourage public/private participation in environmental management</u></p> <p>4.1 Develop public outreach programmes</p> <p>4.2 Enhance the capacity of staff for public out-reach</p> <p>4.3 Develop education, information and communication materials</p>			

PLAN OF OPERATION

Activities		Year	Year 1				Year 2				Year 3				Year 4				2009
			2005				2006				2007				2008				
			Quarter	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	
1)-1	Compile the available monitoring data	Plan	■																
		Actual	■																
1)-2	Plan a routine monitoring programme	Plan		■															
		Actual		■															
1)-3	Develop a special-purpose monitoring programme in a partnership with lead organizations.	Plan			■														
		Actual			■	■	■												
1)-4	Improve the lab facilities according to the planned routine monitoring programme.	Plan		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
		Actual		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
1)-5	Conduct the routine monitoring.	Plan		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
		Actual		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
1)-6	Conduct a special-purpose monitoring programme in a partnership with lead organizations.	Plan																	
		Actual																	
1)-7	Conduct trainings for water quality monitoring	Plan		■	■		■			■		■							
		Actual		■	■		■			■		■							
1)-8	Establish databases for water quality monitoring	Plan		■															
		Actual		■															
1)-9	Conduct trainings for database management	Plan																	
		Actual																	
1)-10	Review the routine monitoring programme.	Plan																	
		Actual																	
1)-11	Review the special-purpose monitoring programme.	Plan																	
		Actual																	
1)-12	Evaluate the performances in the monitoring programmes.	Plan																	
		Actual																	
2)-1	Conduct trainings for environmental management	Plan		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
		Actual		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
2)-2	Develop environmental management tools (state of environment reports, manuals, etc)	Plan																	
		Actual																	
2)-3	Establish an integrated water quality monitoring database	Plan																	
		Actual																	
3)-1	Collect and compile the available data regarding watershed	Plan																	
		Actual																	
3)-2	Develop a GIS database regarding watershed	Plan																	
		Actual																	
3)-3	Conduct an analysis of watershed based available data in an integrated manner	Plan																	
		Actual																	
3)-4	Coordinate stakeholders to explore pragmatic and sustainable actions for watershed management	Plan																	
		Actual																	
4)-1	Develop public outreach programmes	Plan		■															
		Actual		■															
4)-2	Enhance the capacity of staff for public outreach	Plan		■															
		Actual		■															
4)-3	Develop education, information, and communication materials	Plan		■															
		Actual		■															

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Dispatched Japanese Experts

Name	Assignment	Period	Office affiliated
[Long-term]			
Hiroyuki GOTO	Chief advisor / Environment Management	2005.5.24-2007.5.22	City Government of Miyakojima, Japan
Naomi NISHIURA	Project co-ordinator	2005.2.1-2006.1.31	Institute for International Cooperation, JICA
Shigeo WATANABE	Project co-ordinator / Data management	2006.1.7-2009.2.13	Forum 21 Ltd.
[Short-term]			
Toshiyuki UJIIE	Leader of Consultant Team / Data analysis	2005.7.25-2005.8.14	Nippon Koei Co., Ltd.
		2006.2.15-2006.3.4	
		2006.5.10-2006.5.27	
		2006.11.29-2006.12.19	
		2007.1.30-2007.2.28	
	Chief advisor / Environment Management	2007.5.15-2007.6.13	
		2007.8.30-2007.9.22	
		2007.10.31-2007.12.1	
		2008.3.12-2008.3.26	
		2008.6.3-2008.7.2	
Itaru OKUDA	Sub-leader of Consultant Team / Data analysis / Monitoring	2005.8.1- 2005.9.14	Nippon Koei Co., Ltd.
		2005.10.18- 2005.11.16	
		2006.1.11-2006.2.21	
		2006.6.7-2006.7.3	
		2006.9.5-2006.10.8	
		2007.1.8-2007.2.2	
Yoshiki YAMAMOTO	Water Quality Analysis / Laboratory Management	2005.8.19-2005.9.10	Nippon Koei Co., Ltd.
		2005.10.26-2005.11.16	
		2006.5.30-2006.6.28	
		2006.10.25-2006.11.23	
Aki BABA	Database Establishment	2005.7.25-2005.9.1	Nippon Koei Co., Ltd.
Tetsuo KUYAMA	Database Establishment	2006.2.26-2006.3.21	Nippon Koei Co., Ltd.
Akiko USUDA	Database Establishment	2007.1.15-2007.2.28	Nippon Koei Co., Ltd.
		2007.7.3-2007...1	
		2007.10.1-2007.11.3	
		2008.5.7-2008.6.11	
Shunsuke HIEDA	Water Pollution Analysis	2007.7.24-2007.9.8	Nippon Koei Co., Ltd.
		2007.9.28-2007.11.15	
Shinsuke SATO	Factory Inspection / Pollution Control	2007.9.18-2007.10.17	Nippon Koei Co., Ltd.
		2007.7.30-2007.8.29	
Senro IMAI	Environment Administration	2005.8.28-2005.9.23	Institute for International Cooperation, JICA
		2007.2.17-2007.2.24	
Masahisa NAKAMURA	Pollution Control	2007.3.16-2007.3.27	Shiga University

Kenyan Counterpart Personnel

Post/Assignment	Name	Period
Municipal Council of Nakuru (MCN)		
Town Clerk, MCN Project Director	J. W. Kangethe	Feb 2005 to Nov 2006
	A.M. Leina	Nov 2006 to Jan 2008
	F. Olwero	Mar 2008 to Oct 2008
	S.A. Abdillahi	Nov 2008 to date
Department of Environment (DOE), MCN		
Director, DOE Project Manager.	S. Kiarie	Feb 2005 to date (except for Mar to May
	J. Mungai	May 2006 to Dec 2006
Deputy Director, DOE	I. Kimani	Feb 2005 to Mar 2006
	S. Kimani	Jul 2007 to date
Head, Pollution Control Section, DOE	M. F. Kuibita	Feb 2005 to Nov 2007
Deputy Head, Pollution Control Section (in charge of Industrial Area of MCN)	G. Gachomba	Sep 2005 to date
Asst. Head, Pollution Control Section (in charge of Central Business District of MCN)	S. Gicheru	Sep 2005 to date
Officer, Pollution Control Section (in charge of Southern Zone of MCN)	N. Mulama	Sep 2005 to date
Officer, Pollution Control Section (in charge of Eastern Zone of MCN)	J. Mwangi	Feb 2005 to Aug 2007
Assistant, Pollution Control Section	P. Raboso	Aug 2008 to date
Secretary	M. Kariba	Sep 2006 to date
Driver	J. Njoroge	Feb 2005 to date
	J. Mbugua	Feb 2005 to date
Related Organization		
1. Water Quality Testing Laboratory (WQTL), NAWASSCO		
Chief Laboratory Technologist, WQTL	A. Kulecho	Feb 2005 to date
Laboratory Technologist, WQTL	N. Waweru	Feb 2005 to date
Laboratory Technician, WQTL	C. Nyakundi	Feb 2005 to date
	G. Mutai	Feb 2005 to date
2. NAWASSCO		
Managing Director	J. Ongeru	Feb 2005 to Nov 2007
	J. Cheruiyot	Jul 2008 to date
Technical Manager	D. Owore	Feb 2005 to Nov 2006
	J. Gachathi	Oct 2007 to date
3. Kenya Wildlife Service (KWS)		
Assistant Director, Central Rift Area	A. Kahihia	Mar 2006 to date
Senior Warden, , Lake Nakuru National Park (LNNP)	J. Warutere	Feb 2005 to Mar 2006
	C. Muthui	Mar 2006 to May 2008
	L. Kisoyan	June 2008 to date
Senior Scientist, Reserch Section, LNNP	A. Kariuki	Feb 2005 to Nov 2006
	J. Edebe	Dec 2006 to date

Kenyan Counterpart Personnel Trained in Japan

	Name	Course Title	Duration	Post	Organization /Department
1	Ms. Margaret Furo Kuibita	Construction of a Model Environmental City by Community Participation	2006/10/16 ~ 2006/12/2	Head of Pollution Control Section	Dept. of Environment, Municipal Council of Nakuru
2	Mr. Stephen Gicheru	Construction of a Model Environmental City by Community Participation	2007/9/30 ~ 2007/11/17	Assistant head of Pollution Control Section	Dept. of Environment, Municipal Council of Nakuru
3	Mr. Ngatia Waweru	Water Environmental Monitoring	2007/10/16 ~ 2007/11/20	Laboratory Technologist, Water Quality Testing Laboratory	Nakuru Water and Sanitation Service Company
4	Mr. Andrew Kelecho	Water Quality Monitoring	2008/9/1 ~ 2007/9/21	Chief Technologist, Water Quality Testing Laboratory	Nakuru Water and Sanitation Service Company
5	Mr. George Gachomba	Construction of a Model Environmental City by Community Participation	2008/9/21 ~ 2007/11/8	Assistant head of Pollution Control Section	Dept. of Environment, Municipal Council of Nakuru

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Equipment Provided by Japan

No	Item	Price (Ksh)	Budget type (P.Y)	Purchase/ Delivery date	unit	Manufacturer	Model type	Management in charge
JFY2004/05								
1	Laptop PC	131,500	2004, Equipment donation	11/03/2005	1	Toshiba	Satellite A60	MCN Project office
2	Data Projector	120,000	2004, Equipment donation	11/03/2005	1	Sony	VPL-CS7	MCN Project office
3	Laser Color Printer	55,050	2004, Equipment donation	11/03/2005	1	HP	Color LazarJet 2550n	MCN Project office
4	Didital Camera	31,500	2004, Expert donation	11/03/2005	1	Sony	DSC-P73	MCN Project office
5	Projector Screen	29,500	2004, Expert donation	11/03/2005	1	NOBO	15m ² with stand	MCN Project office
6	UPS	17,000	2004, Expert donation	11/03/2005	1	APC	650VA	MCN Project office
7	FAX machine	70,720	2004, Equipment donation	23/03/2005	1	CANON	MPC-75	WQTL, NAWASSCO
8	Photocopier	924,786	2004, Equipment donation	23/03/2005	1	Kyocera-Mita	KM6330	MCN Project office
9	Desktop PC w/software	230,200	2004, Expert donation	24/03/2005	2	Compaq	DX6100	MCN Project office
10	Office desk set	51,400	2004, Expert donation	11/03/2005	1	Akshar Furniture		MCN Project office
11	Motor Vehicle, 4WD Double Cabin Pick Up	2,105,919	2004, Equipment donation	20/04/2005	1	Nissan	D22J85 double cabin pick up, Diesel	MCN Project office
12	Motor Vehicle, 4WD Station Wagon	2,671,531	2004, Equipment donation	20/04/2005	1	Nissan	Patrol 4200cc Diesel	MCN Project office
	Subtotal	6,439,106						
JFY2005/06								
1	Atomic Absorption Spectrophotometer	2,190,020	2005, Equipment donation	05/09/2005	1	SOLAAR	S2 Double Beam AA Spectrometer	WQTL, NAWASSCO
2	Multipameter portable meter	285,000	2005, Equipment donation	05/09/2005	1	WTW	Multi 350i	WQTL, NAWASSCO
3	Spectrophotometer	890,000	2005, Equipment donation	05/09/2005	1	Janway	model 6505	WQTL, NAWASSCO
4	Incubator	139,590	2005, Equipment donation	09/08/2005	1	NUVE	EN500	WQTL, NAWASSCO
5	Refrigerator	85,600	2005, Equipment donation	09/08/2005	1	SAMSUNG	RT37MA	WQTL, NAWASSCO
6	Deep freezer	58,900	2005, Equipment donation	09/08/2005	1	INDESIT	OFT250FA	WQTL, NAWASSCO
7	Kjeldahl Nitrogen digestion unit	169,300	2005, Equipment donation	09/08/2005	1	HACH		WQTL, NAWASSCO
8	Hotplate with stirrer	184,500	2005, Equipment donation	09/08/2005	3	CIMAREC	SP131320-33	WQTL, NAWASSCO
9	Inflatable rubber dingy with motor	393,200	2005, Equipment donation	09/08/2005	1	Bombard / YAMAHA	Loading capacity: 600kg (6 person) / Enduro 15	WQTL, NAWASSCO
10	Laboratory glassware / consumable	1,121,015	2005, Equipment donation	05/09/2005		various	Microset Pipet, Nessler tube etc.	WQTL, NAWASSCO
11	Reagents	302,960	2005, Equipment donation	05/09/2005		various		WQTL, NAWASSCO
12	Reference Book (1 Item)	32,000	2005, Equipment donation	05/09/2005	1	APHA/AWWA/ WEF		WQTL, NAWASSCO
13	Desktop PC	149,663	2005, Equipment donation	05/09/2005	1	HP	DX6120MT	WQTL, NAWASSCO
14	Photocopier	150,500	2005, Equipment donation	05/09/2005	1	Toshiba	eStudio 161	WQTL, NAWASSCO
15	Scanner	11,600	2005, Equipment donation	05/09/2005	1	HP	Scanjet 3770	MCN Project office
16	Raser Printer	32,949.8	2005, Equipment donation	05/09/2005	1	HP	LaserJet 1320	MCN Project office
17	Digital Video Camera	59,760	2005, Equipment donation	05/09/2005	1	SONY	DCR-TRV480E	MCN Project office
18	FAX machine	55,680	2005, Equipment donation	05/09/2005	1	Panasonic	KX-FL512	MCN Project office
	Subtotal	6,312,236						

JFY2006/07								
1	Oil Content Analyzer	1,685,000	2006, Equipment donation	08/09/2006	1	Horiba	OCMA-310	WQTL, NAWASSCO
2	Water Purifier	726,000	2006, Equipment donation	08/09/2006	1	ELGA	UHQ-II-MK3	WQTL, NAWASSCO
3	Ultrasonic Cleaners	225,000	2006, Equipment donation	08/09/2006	1	Ultrawave	U2800D	WQTL, NAWASSCO
4	Ultrasonic Pipette Washer	516,000	2006, Equipment donation	08/09/2006	1	Yamato	AW-31	WQTL, NAWASSCO
5	Pharmaceutical Refrigerator	594,000	2006, Equipment donation	08/09/2006	1	Sanyo	MPR-414FS	WQTL, NAWASSCO
6	Water Sampler	275,000	2006, Equipment donation	08/09/2006	1	KC Denmark	Model-11.000	WQTL, NAWASSCO
7	Laboratory Jack	60,000	2006, Equipment donation	08/09/2006	3	Tech Jam	SB4710-20	WQTL, NAWASSCO
8	Waterproof Digital Camera	124,000	2006, Equipment donation	08/09/2006	2	Pentax	Optio Wpl	MCN / WQTL
9	Reagents (46 items)	926,000	2006, Equipment donation	29/10/2006		various		WQTL, NAWASSCO
10	Microscope	110,000	2006, Equipment donation	30/03/2007	1	Kruss	MBL2100	WQTL, NAWASSCO
11	Digital Camera for microscope	52,000	2006, Equipment donation	30/03/2007	1	CANON		WQTL, NAWASSCO
12	Laptop Computer	117,172	2006, Equipment donation	30/03/2007	1	DELL	INSPIRON 640m	MCN Project office
13	GIS Software	119,000	2006, Equipment donation	30/03/2007	1	ESRI	ArcView 9.2 Single Use	MCN Project office
14	Glassware (20 items)	185,000	2006, Equipment donation	30/3/2007		various		WQTL, NAWASSCO
	Subtotal	5,131,000						
JFY2007/08								
1	Multi-Waterquality Meter	250,000	2007, Equipment donation	27/02/2008	1	WTW	Multi 350i	WQTL, NAWASSCO
	Subtotal	250,000						
	Total	18,132,344						

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Operational Cost (Japan / Kenya)

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 <Japanese Side>

(Unit : Ksh)

Items of Expenditure	JFY2004/05 (Result)	JFY2005/06 (Result)	JFY2006/07 (Result)	JFY2007/08 (Result)	JFY2008/09 (Plan)	Total
General recurrent cost (incl. Water monitoring cost)	169,656.00	4,526,337.00	4,392,000.00	2,588,878.00	3,605,000.00	9,087,993.00
GIS map of Lake Nakuru watershed						
Local activity cost Total	169,656.00	4,526,337.00	4,392,000.00	2,588,878.00	3,605,000.00	9,087,993.00

* JFY: Japanese Financial Year; April - March

<Kenyan Side>

The Kenyan side provided part of the operational expenses from the budget allocated to DOE of MCN and KWS/LNNP.
 No detailed figure is available.

Training Conducted

Seminar Title	Purpose	Date	Venue	Remarks	Participants			
					MCN	NAWCO	KWS	Others
LECTURE SERIES (1, 2, 3)	Lecture and discussion about Environmental Standard, Pollution Control in Enterprise, Measures for Lake Management.	9, 13, 15 Sep. 2005	Conference room, Public Health Dept.	Lectured by Mr. Imai, JICA expert	7	2	—	4, JAT
STUDY TOUR (1) -NAIROBI-	To learn how the other laboratories are operated and gather vital information for the appropriate quality management of WQTL	28, Jun. 2006	KEBS, Government Chemist		—	3	—	2, JAT
STUDY TOUR (2) -MOMBASA-	To learn how the other laboratories are operated and gather vital information for the appropriate quality management of WQTL	18-22 Jul. 2006	MOWASSCO, 4 companies		—	4	—	2, JAT
LECTURE SERIES (4)	Lectured and discussion about Industrial Pollution Control -Strategies and Tactics-	20 Feb. 2007	Conference room, Public Health Dept.	Lectured by Mr. Imai, JICA expert	10	—	—	3, JAT
CLEANER PRODUCTION AND NAKURU	Lecture and discussion with observation of factory and other environment of Nakuru with researcher, administrative officer and businessman	19-23 Mar. 2007	Bontama Hotel	Collaboration with Kenya Association of Manufacturers	9	3	3	65, Univ., Factories, NEMA, NGOs
STUDY TOUR (3) -MERU-	To learn how the other laboratories are operated and gather vital information for the appropriate quality management of WQTL	10-11 May 2007	MEWASS		2	3	—	1, JAT
PROJECT LAUNCH WORKSHOP FOR "DEVELOPING STRATEGIES TO ADDRESS THE DECLINING FLAMINGO POPULATIONS..."	The workshop was supported by UNEP to enhance the coordination between the various research field concerning flamingo population in the Rift Valley Lakes in Kenya	18-19 Jul. 2007	Sarova Lion Hill Hotel		1	—	3	1, JAT
GIS Training (1)	Lecture on basic knowledge and function of GIS database in data display and querying functions, data editing, spatial analysis etc.	26-28 Nov. 2007	Pollution Control Sec. office, MCN	Lecture arranged by Oaker Service Ltd.	2	1	2	—
GIS Training (2)	End user training on the database structure for the developed GIS and MS Access database	29, 30 May 2008	Pollution Control Sec. office, MCN	Lecture arranged by Oaker Service Ltd.	3	1	1	—
ISO/IEC 17025 TRAINING	To provide practical approach and methods of documenting, implementing and monitoring the laboratory management system for the essential requirements of the ISO/IEC 17025 standard	24-26 Sep. 2008	WQTL, NAWASSCO	Lecture by NEBS and KENAS	5	10	3	2, NEMA

Factory Compliance Rate

No	Name	Type of Factory	2005	2006	2007	2008
1	Happy Cow Ltd.	Food	0	0	0	0
2	Bidco Ltd.	Oil	0	1	1	—
3	Valley Bakery Ltd.	Food	0	1	1	0
4	Rift Valley Oil Product Ltd.	Oil	0	0	—	—
5	Londra Ltd.	Textile	0	1	0	0
6	Nakuru Tanners	Chemical	0	0	0	0
7	Spin-Knit Textile Ltd.	Textile	0	1	1	1
8	Spin-Knit Dairy Ltd.	Food	0	1	1	1
9	Bedi Investment Ltd.	Textile	0	0	1	—
10	Menengai Oil Refineries Ltd.	Oil	0	1	0	—
11	Pyrethrum Board of Kenya	Chemical	0	1	0	—
12	Palmac Oil Refineries	Oil	0	1	0	—
13	(New) Kenya Cooperative Creameries	Food	0	1	—	—
14	Palmac Soap Factory Ltd.	Chemical	—	—	—	—
15	Menengai Soap Factory Ltd.	Chemical	—	—	0	—
16	Buds and Blooms	Flower firm	—	—	—	—
17	United Millers	Oil	—	—	—	—
18	Kenya Railways Garage	Locomotive repair	—	—	—	—
No of factories inspected			13	13	12	6
No of factories which comply with standards			0	9	5	2
Rate of factories which comply with the standards			0.0%	69.2%	38.5%	15.4%

Note: 1 - Comply, 0 - Not comply, — Not inspected

Publications issued by NEMP

TITLE	Purpose	Issued on
NEMP PROJECT INTRODUCTION PANEL	Introduction of NEMP activity for the 11th World Lake Conference and other visitors to WQTL, NAWASSCO with 9 panels	Oct. 2005
LEAFLET OF NEMP	Introduction of NEMP general information to the public.	Dec. 05, Jan. Nov. 07
STRENGTHENING ENVIRONMENTAL STEWARDSHIP TOWARD THE NAKURU WE WANT	Reporting the contents of Professional Forum on Urban Environment of Nakuru.	Oct. 2005
LABORATORY CONTROL MANUALS, NAKURU WATER QUALITY TESTING LABORATORY	To produce the data of defensible quality, adequate precision, accuracy and sensibility with monitoring that quality maintained.	Jan. 2006
NEWS LETTER.No.1	To notify up-to-date activities of NEMP to the public.	Aug. 2005
NEWS LETTER No.2	To notify up-to-date activities of NEMP to the public.	Jul.2007
NEWS LETTER No.3	To notify up-to-date activities of NEMP to the public.	Nov. 2008
REPORT ON CLEANER PRODUCTION AND NAKURU	Reporting about the workshop for sharing information and discussing about cleaner production in Nakuru.	Mar. 2007
BROCHURE OF NAKURU COMMUNITY ENVIRONMENT RESOURCE CENTRE	Introduction of newly built Nakuru Community Environment Resource Centre to the public.	May. 2007
CONSULTANCY SERVICES FOR GIS MAPPING WORK OF LAKE NAKURU WATERSHED AREA -FINAL REPORT-	Final report for the development of Geographic Information System (GIS) for the management of Watershed of Lake Nauru (covering 1,700km ²)	May. 2007
NEMP GIS USER MANUAL	User manual written for the person responsible for the update and maintenance of GIS database	May. 2007
NEMP GIS DATA DICTIONARY	Data dictionary to assist users to understand where a data item fits in the data structure, what values it may contain and what the data items means in real world terms	May. 2007
OUR WATER, OUR LIFE_ THE NAKURU PERSPECTIVE	Textbook to understand water for its sustainable use to standard 4-8 student of primary school.	Oct. 2007
WATER QUALITY AWARENESS CREATION WORKSHOP REPORT (1)	Reporting the contents of the 5 zonal workshops with members of school management committee, head teachers and science teachers.	Nov. 2007
WATER QUALITY AWARENESS CREATION WORKSHOP REPORT (2)	Reporting the contents of the 5 zonal workshops with environment club patrons and pupils of primary school.	Mar. 2008
EVALUATION ON WATER QUALITY AWARENESS CREATION WORKSHOPS	Report of the sampling surveys to ascertain the impact of awareness on water quality workshops among primary school.	Jul. 2008
MANUAL FOR COMPLIANCE SAMPLING INSPECTION	To make the procedure of wastewater compliance inspection wastewater sampling to the relevant personnel of MCN.	Aug. 2008
GUIDELINE FOR INDUSTRIAL EFFLUENT TREATMENT (LEATHER TANNING)	Technical reference guideline for planning industrial water treatment, and for the management and control of industrial specific sector of leather tanning.	Aug. 2008

Results of Activities Planned

Activities	Results	Status
1-1 Compile the available monitoring data	The available data was compiled at the initial stage of the Project. Since WQTL's activities were largely on the monitoring of water supply and sewerage system before the commencement of the Project, most data was confined to this area.	Completed
1-2 Plan a routine monitoring programme	The regular monitoring program was developed by WQTL with the involvement of MCN and KWS. The program was officially accepted by all three organizations in March 2006.	Completed
1-3 Develop a special-purpose monitoring programme in a partnership with lead organizations.	Along with the development of the regular monitoring program, the special-purpose monitoring program was developed.	Completed
1-4 Improve the lab facilities according to the planned routine monitoring programme.	Necessary equipment was procured and rehabilitation of the laboratory facilities were completed. Now WQTL is much better equipped compared with most laboratories in Kenya.	Completed
1-5 Conduct the routine monitoring.	The regular monitoring has been duly conducted in accordance with the program. The number of samples analyzed since the commencement of the Project has become more than 4,300 with the monthly average number of 100 samples.	on-going
1-6 Conduct a special-purpose monitoring programme in a partnership with lead organizations.	In June 2007 the first special-purpose monitoring was conducted with an aim to assess the pollution mechanism from the Njoro river to the Lake Nakuru during the rainfall. The second special-purpose monitoring was planned in the second quarter of the fourth year but due to the lack of counterparts in MCN, it was postponed to the next quarter.	on-going
1-7 Conduct trainings for water quality monitoring	The training has been continuously organized on the computer operation and the subject matters for the improvement of the technical capacity of the staff. In addition, the Laboratory Control Manual and Standard Operating Procedures were developed and have been under continuous review.	Completed
1-8 Establish databases for water quality monitoring	The database was developed to store all testing results.	Completed
1-9 Conduct trainings for database management	The training on database management has been organized several times.	Completed

Activities	Results	Status
1-10 Review the routine monitoring programme.	The Regular Monitoring Program was reviewed in the second quarter of fourth year. Taking into consideration the results and findings of the review, the Program is now under revision, reflecting the reality on the ground and available budget, that is to be finalized by the end of the Project.	on-going
1-11 Review the special-purpose monitoring programme.	The special-purpose monitoring activities were reviewed and the program has been revised.	Completed
1-12 Evaluate the performances in the monitoring programmes.	The monitoring programmes were reviewed and evaluated. Accordingly the "Evaluation of the Regular Monitoring" was prepared.	Completed
2-1 Conduct trainings for environmental management	A series of training, both OJT and off-JT, has been organized throughout the Project period such as water pollution control, factory inspection, effluent control, GIS database, etc. The training on the State of Environment Report and the environment impact assessment (EIA) report are planned to be conducted before the end of the Project.	on-going
2-2 Develop environmental management tools (state of environment reports, manuals, etc)	The Factory Inspection Manual and the Guideline for Industrial Effluent Treatment have been prepared as the environmental management tools. The EIA review guideline will be prepared before the end of the Project.	on-going
2-3 Establish an integrated water quality monitoring database	The database of PCS has been developed and reviewed. The database utilization manual will be finalized by the end of the Project.	on-going
3-1 Develop a scope of the study	As a result of discussion among stakeholders, the framework of the GIS database was decided. In accordance with their objectives, the database is divided into two categories of the Lake Nakuru watershed and the Nakuru town.	Completed
3-2 Collect and compile the available data regarding watershed	In collaboration with MCN, NAWASSCO, KWS and SUMAWA project (Egerton University) available data was collected including the results of water quality monitoring and satellite imaginaries.	Completed
3-3 Develop a GIS database for water quality management in the watershed.	The GIS database was developed with the data collected in 3-1 above and it was completed in July 2008.	Completed

Activities	Results	Status
3-4 Conduct an analysis of watershed based available data in an integrated manner	The Hydrological and Water Pollution Analysis module was developed to be integrated into the GIS database completed. The module will be utilized for the formulation of an action plan of the environmental management of the Lake Nakuru watershed. Further, the two seminars on the Management of Lake Nakuru Catchment were organized in February 2007 and June 2008 with the participation of MCN, KWS, NAWASSCO, SUMAWA project and NGOs.	on-going
3-5 Coordinate stakeholders to explore pragmatic and sustainable actions for watershed management	The meetings have been continuously organized among MCN, NAWASSCO, KWS, NEMA Nakuru District and Egerton University to discuss the issues related to the environmental management of Lake Nakuru watershed. A seminar on hydrological and water quality mechanism of the watershed is to be organized in February 2009, inviting above-mentioned stakeholders as well as NGOs.	on-going
4-1 Develop public outreach programmes	The consultation with school principals in collaboration with the Education department of MCN was conducted to organize the environmental awareness raising workshops in primary schools. Also, the establishment of the Nakuru Environmental Resource Center at the Nakuru branch of the Kenya National Library Service in collaboration with the library, MCN and NGOs was discussed for the dissemination of the environmental information.	Completed
4-2 Enhance the capacity of staff for public outreach	The Nakuru Environmental Resource Center was established at the Nakuru branch of the Kenya National Library Service as planned. In addition, a number of workshops and training were organized. Six workshops were organized for the residents and the training on the cleaner production was held in March 2007 with the participation of the representatives from the Nakuru business community along with government officials. A total of 413 school children from 78 primary schools in the municipality participated in a series of workshops on water environment. Further, 73 children from 22 schools attended the water quality monitoring program held in October 2008.	Completed
4-3 Develop education, information, and communication materials	A booklet targeting the primary school children was prepared and distributed. Further, the newsletters have been issued and the web-site has been developed. Before the end of the Project, the third issue of the newsletter is planned to be published.	on-going

Implementation Process

Evaluation Questions		Findings
Questions	Specific Questions	
Project Period	Have activities been implemented as planned?	The activities planned under Output 1, 3 and 4 have been implemented mostly as scheduled. As regards Output 2, the implementation of some activities have been delayed.
	Was there any factors affecting the project implementation?	<ul style="list-style-type: none"> * The post-election turmoil affected the project implementation. For five months the experts were not allowed to visit the project area. Also, the CP were unable to conduct the regular monitoring in those sites where the situation was volatile and most of the factories to be inspected were either closed down or downsizing their operations. * The number of staff assigned in PCS remains much fewer than that initially agreed in RD and has not been sufficient to undertake all the activities as scheduled. In particular, the transfer of the core staff taken place in November 2007 has caused significant delay in the Project implementation.
Technical Transfer	Was the technical transfer from the experts to CP appropriate (contents, methodology, etc.)?	The technical transfer has been duly conducted. Almost all the CP and the staff of the collaborating agencies stated in the questionnaires that they were very much satisfied with the support given by the Japanese experts for the enhancement of their technical capability.
Project Monitoring Mechanism	Is the monitoring mechanism appropriate?	The progress and the problems of the daily activities are shared and discussed in the Tripartite Coordination Meeting held monthly. As regards the Output 1, the Project developed the checklist reflecting the ISO17025 framework, against which the progress is monitored every quarter.
	Is monitoring conducted regularly?	The Tripartite Coordination Meeting is held monthly among the representatives from MCN, NAWASSCO, KWS and JAT. The JCC was held four times since the onset of the Project.
	Did the Project properly modify the activities reflecting the results of monitoring?	After the PDM1 was approved in the first JCC meeting, about six months after the Project commencement, it was slightly revised once at the workshop held at the time of the Mid-term Evaluation. Other than that, no modification was made in PDM. PDM could have been modified reflecting the progress of the activities and the situation on the ground as the Project faced a number of challenges which actually caused the delay in the implementation of the planned activities. Further, some indicators could have been replaced with more quantifiable and objective ones so that the Project progress could have been easily assessed.
Relationship between CP and Japanese Experts	Has the communication btw. CP & experts been smooth?	Both CP and experts agreed that the communication between them was good and smooth, especially after the office was allocated to the Project in PCS in September 2006.
	Have CP & experts worked together to address any emerging problem?	Any emerging problem has been shared and discussed between CP and experts.
Ownership of Kenyan Side	Have CP been actively involved in the Project implementation?	Most of the CP and staff in the collaborating agencies have been positively engaged in the Project.
	Have CP taken an initiative in the Project implementation?	As the enhancement of their technical capability, some staff have been gradually taking their initiative in the Project implementation.

Relationship with Concerned Agencies	Has the communication between the Project and the JICA Kenya office been smooth?	All experts agreed that the communication with JICA Kenya office has been frequent and smooth.
	How has MCN been involved in the Project?	MCN has a strong commitment for the improvement of environmental management of Nakuru town. The establishment of DOE and the enactment of the Environmental Management By-laws in April 2007 clearly demonstrates the strong commitment of MCN towards the better environmental management of the town. But as regards the number of CP assigned in PCS, MCN was unable to conform with the agreement in R/D. It has caused the serious stagnation in the Project implementation.
	How has WQTL been involved in the Project?	WQTL has been actively involved in the Project. All the WQTL staff have stayed with the Project throughout the Project period, which significantly contributed to the enhancement of their technical capability as well as the smooth implementation of the planned activities.
	How has KWS/LNNP been involved in the Project?	KWS has positively participated in the Project as the collaborating agency. They are one of the signatory of MOU and attend the monthly tripartite meetings to follow the Project activities.
	How has the collaboration among MCN, WQTL and KWS/LNNP been, especially since the conclusion of tripartite agreement?	The Project has greatly facilitated the cooperation among three agencies. They have been working more closely than ever. The mutual understanding has been generated that they must collaborate to undertake their duties properly and effectively since the duties of each agency are closely interrelated. The tripartite meeting has been continuously held monthly to exchange information and to discuss emerging issues and problems. MOU was the one of the major achievements of the Project. It stipulates the clear roles and responsibilities of each agency in the framework of the Project as well as after the Project phased out. However, the financial arrangement agreed in the MOU has not been materialized although it was agreed that each agency would finance the monitoring activities starting from August 2008. Up to November 2008 their actual disbursement is nominal and the Project is still financing almost all the expenses related to the monitoring activities. It should be sorted out immediately for the monitoring activities to be duly continued.
	How has NEMA been involved in the Project?	NEMA has been participating the monthly tripartite meetings as well as the seminars organized by the Project. Their commitment towards the environmental management of Lake Nakuru catchment is high. But as regards the accreditation of the WQTL, it has been taken a considerable time.
	How has the Project cooperated with other donors, NGOs and other governmental agencies?	The Project has been collaborating with other stakeholders working on the environmental management of the region. In relation to the Output 3, the Project has been actively working with the other donor-funded project, NGOs as well as relevant governmental offices for the development of GIS database of the Lake Nakuru catchment. The Project also organized the seminars inviting stakeholders to exchange the information and the views for the establishment of the collaborating mechanism for the environmental management of the catchment. With regard to Output 4, the Project is collaborating with the Education Department of MCN, Nakuru branch of the National Library and NGO for the dissemination of environmental information and the awareness raising of the public.
Others	Has there been any factors impeding the smooth project implementation?	The Project became virtually standstill over several months due to the post-election unrest. This had a serious negative impact on the progress of the Project. In addition, the inadequate number of PCS staff made the smooth implementation of the activities difficult.

Achievement of Outputs

Expected Outputs	Indicators	Achievements
<p>OUTPUT 1 - Credible quality with effective coverage in monitoring is attained</p>	<p>1-1 No. of samples and range of parameters measured 1-2 Accreditation of laboratory by NEMA or any other recognized authorities</p>	<p>1-1 In the past three years, more than 4,300 samples were collected and analyzed. The parameters of heavy metals are analyzed in addition to the physico-chemical and biological parameters. At present, WQTL analyzes 45 parameters as indicated in Annex 3-1. 1-2 In September 2008, WQTL was listed to be gazetted for accreditation by NEMA.</p>
<p>OUTPUT 2 - Effective environmental management tools and mechanism for enforcement are developed and utilized.</p>	<p>2-1 Coverage of database 2-2 Number of staff trained 2-3 Number of monitored facilities and critical points 2-4 Rate of compliance of businesses in pollution control and action taken 2-5 Number and scope of management tools (e.g. manuals, reports)</p>	<p>2-1 The database was created and has been continuously updated with the results of the on-going water quality monitoring and the factory inspection. 2-2 Both OJT and off-JT have been organized on the development and operation of database, the water quality standard, the factory inspection, the lake management, etc. As of October 2008 a total of 78 staff from three organizations participated in 12 training programmes (See Annex 3-2). The training for the new staff joining in PCS from October 2008 should be duly conducted in the remaining Project period. 2-3 The total number of the factory inspection conducted by PCS in 2007 was approximately 130. In 2008 the post-election unrest and the limited number of PCS staff have negatively affected its frequency and this number dropped to 36 as of August 2008. 2-4 The major factories operating in Nakuru is 18 and their compliance rates between 2005 and 2008 are 0%, 69.2%, 38.5% and 15.4% respectively as indicated in Annex 3-3. The reasons for the lower compliance rates in 2007 and 2008 than 2006 are most likely to be attributed to the better detection capacity of PCS and WQTL among other reasons. After the project commencement, the average number of notice issued to those factories which fail to comply with criteria set by NEMA is ten in a month. In 2007 seven factories and in 2008 three factories respectively were filed a legal action against by MCN as they failed to improve their performance within a reasonable period of time after the notice was issued. 2-5 The "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment" were prepared as the environment management tools to be utilized by PCS to enhance their capacity on the effluent monitoring. In addition, the "State of Environment" and "EIA Review Guideline" are planned to be prepared by the end of the Project.</p>
<p>OUTPUT 3 - Cooperation is established among lead organizations and stakeholders for the study and actions in the watershed for its better management.</p>	<p>3-1 Coverage of GIS database and its accessibility 3-2 Scope of explored actions</p>	<p>3-1 Under the leadership of the Project, relevant data was collected from MCN/DOE (LUO Project), NAWASSCO, KWS and the Egerton University (SUMAWA project) with an aim to develop the comprehensive GIS database covering a whole Lake Nakuru Catchment. The collected data included rainfall, land use, altitude, river position, and its water volume, geological map and road network as well as the results of water quality monitoring data collected and analyzed in the Project and satellite imaginaries. The creation of database was completed in July 2008 and the completed database was distributed to stakeholders for use. 3-2 The hydrological and water pollution analysis module was prepared to formulate an action plan for the environmental management of Lake Nakuru catchment.</p>

	3-3 Degree of resource allocation for watershed management among lead organizations and stakeholders	3-3 As indicated above, four agencies contributed the data to the creation of GIS database. Further, several seminars have been organized with an aim to facilitate the cooperation among stakeholders who are working on the environmental management of Lake Nakuru catchment. In February 2007 and June 2008 the seminars on environmental management of Lake Nakuru Catchment were organized to facilitate the cooperation in pollution control in the catchment. In October 2008 the workshop on Mau Spatial Data Infrastructure was co-funded by the Project and the other funding agencies such as ERMIS Africa to create the mutual understanding to establish Mau Spatial Data Infrastructure and Clearing House within stakeholders. Moreover, in February 2009, another seminar is planned to be organized to formulate a road map for a comprehensive approach for environmental management of the catchment.
OUTPUT 4 - Public and private participation in local environmental management is enhanced	4-1 Number and scope of local initiative 4-2 Number and scope of citizen participation 4-3 Number and scope of developed materials	4-1 The Nakuru Environmental Resource Center was established at the Nakuru branch of the Kenya National Library Service in collaboration with the library, MCN and NGOs for the dissemination of the environmental information. Further, Six environmental awareness workshops targeting the public as well as the environmental education programmes targeting school children were organized. 4-2 Six workshops were held with the participation of approximately 600 residents and their proceedings were compiled into two publications. Further, a total of 206 school children and 207 school management committee members from 78 primary school participated in a series of environmental awareness raising workshops while 47 children and 26 teachers from 22 primary schools attended the water quality testing program. Also, the ten primary school teachers from different schools were involved in the preparation of the booklet on water. 4-3 A booklet, brochures, newsletters and posters were prepared and distributed to raise the environmental awareness of the public as well as school children (See Annex-3-4).

Achievement of Project Purpose

Project purpose	Indicators	Achievements
To improve the water-related environmental management capacity of the Nakuru Municipal Council	<ol style="list-style-type: none"> 1. Utilization of monitoring data 2. Degree of improvement and enhancement of GIS database contents 3. Utilization of environmental management tools (manuals, reports, etc.) 4. Degree of dissemination of materials developed for environmental awareness 	<ol style="list-style-type: none"> 1. The monitoring data analyzed by WQTL is reported back to the PCS and KWS. The three agencies, namely PCS, NAWASSCO and KWS, have been effectively utilizing the analyzed data for the execution of their duties. NAWASSCO responsible for the sewerage and potable water of the town has been using the data to keep the water quality acceptable for drinking as well as to assess the performance of sewerage treatment. KWS is accumulating the data to maintain the standards for the acceptable habitat for wild life and PCS is for the regulation of pollutants. It is expected that the accreditation of WQTL will facilitate the enforcement process undertaken by PCS and the monitoring data will be more widely used for such purpose. 2. The GIS DB was created with a wide range of information collected from different organizations. It is the most comprehensive GIS DB available for the Lake Nakuru Catchment. The DB has been distributed by MCN to KWS, NAWASSCO, Egerton University and NEMA. 3. The "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment" were prepared as the environmental management tools to be utilized by PCS in the effluent monitoring. Although 25 factory inspections were conducted, referring to the "Factory Inspection Manual" between October 2007 and July 2008, due to the lack of the personnel available, both tools have not been fully utilized. Also, the preparation of "State of Environment" and "EIA Review Guideline" has been delayed. As new personnel have been assigned to PCS since October 2008, the Project needs some more time to train them to properly utilize the tools including those to be prepared in the coming months. 4. As regards the educational materials, 2000 copies of the booklet on water environment targeting school children have been distributed to primary schools, the Nakuru Environmental Resource Center attached to the Nakuru branch of the National Library, KWS, NAWASSCO and other relevant organizations.

Achievement of Overall Goal

Overall Goal	Indicators	Achievements
<p>To improve environmental management in the Lake Nakuru Watershed Region</p>	<ul style="list-style-type: none"> - Number of activities of environmental management in the watershed region - Coverage of activities related to environmental management (water, waste, forest, environmental awareness) - Level of partnership among environment-related activities 	<p>The prospect to achieve the overall goal is positive. A number of projects and activities on the environmental management have been taking place in the Lake Nakuru Catchments. Those organizations and agencies which are working for the environmental issues in Nakuru and the surrounding areas are also forming the forums to share the information and to discuss issues and problems related to their activities such as "Nakuru District Environment Committee", "Nakuru Environmental Consortium" and "Mau Spatial Data Infrastructure". However, the cooperation among the organizations could be further strengthened to enhance the effectiveness and efficiency of the activities which each organization is implementing. The Project has made some contributions to the strengthening of the linkage among these stakeholders through the organization of seminars and the creation of the GIS DB. Since the jurisdiction of MCN is inside the boundary of the municipality, MCN needs to collaborate with NEMA, who has a mandate on the environmental issues throughout the district including the catchment. For NEMA to effectively coordinate the stakeholders, the enhancement of their capacity is required.</p>

Evaluation by Five Criteria

Relevance

Questions	Evaluation Questions		Findings
	Priority	Specific Questions	
	Relevance with the development / environment policy of Kenya		The Project objectives are still consistent with the environment and development policies of Kenya. The Environmental Management and Coordination Act (EMCA) enacted in 1999 promotes the decentralization of environmental management to the lower administrative bodies and stipulates the importance of their capacity building to deal with the issues properly. It gives the strong power to the local authority in law enforcement. In line with the EMCA, MCN announced the enactment of the Environmental Management By-laws in April 2007 after the approval of the Minister of Local Government aiming to facilitate the effective environmental management in the municipality.
	Relevance with Japanese ODA policy / JICA program		The promotion of the environment conservation is one of the most important areas of cooperation in the Japan's ODA policy. In particular, the improvement of water environment is strongly advocated. Further, the JICA's Country Strategy Plan revised in August 2006 regards the environment conservation as one of the five pillars of assistance to Kenya.
Needs	Relevance with the needs of Kenya		The deterioration of the water environment in the region has become a serious threat to the well-being of the people as well as the wildlife inhabiting in the region. While MCN was expected to play a significant role in the preservation and rehabilitation of the environment in the municipality, it lacked both physical and technical capacity to undertake such responsibilities and was not able to properly act on the problems. In view of this, the Project was designed to enhance the capacity of MCN in the crucial area of law enforcement, environmental education and partnership building. Thus, the Project is considered to conform to the needs of Kenya.
Appropriateness	Appropriateness with the selection of a target group		WQTL is one of few laboratories in the Rift Valley province, which have both physical and technical capacity to monitor and analyze water quality. On the other hand, MCN/PCS is a designated government authority responsible for the environmental management of the Nakuru municipality and KWS/LNMP is for the Lake Nakuru National Park, which covers significant part of the municipality. Thus, the Project appropriately selected the right target groups for the attainment of the Project purpose.
	Superiority in Japanese technology		Japan has a long experience in supporting the Lake Nakuru watershed region, starting from 1987. The construction of WQTL building was part of such assistance provided by Japan. In addition, Japan is one of the most advanced countries in the world in the environmental technology. These experiences and technical competency of Japan have effectively contributed to the implementation of the Project.
	Effectiveness of the Project approach against the needs of Kenya		The mitigation of further deterioration of the water environment in the Nakuru municipality including the LNMP requires the appropriate management and control of wastewater in Nakuru town with all stakeholders involved. The Project has facilitated the partnership building among the major stakeholders working on the environment issues in the region along with the capacity building of major players. In cognizant of the various constraints each stakeholder faces and the interdependency of their mandates, this approach is appropriate in efficient and effective utilization of available resources in the region for the proper environmental management.

Effectiveness

Evaluation Questions		Findings
Questions	Specific Questions	
Achievement of Project Purpose	<p>Achievement of Project Purpose</p>	<p>The Project purpose is likely to be achieved provided that the Project is extended by five months. The monitoring data analyzed by WQTL is reported back to the PCS and KWS. The three agencies, namely PCS, NAWASSCO and KWS, have been effectively utilizing the analyzed data for the execution of their mandates. It is expected that the accreditation of WQTL will facilitate the enforcement process undertaken by PCS and the monitoring data will be more widely used for such purpose. The GIS DB was created with a wide range of information collected from different organizations. It is the most comprehensive GIS DB available in the Lake Nakuru Catchment. The "Factory Inspection Manual" and the "Guideline for Industrial Effluent Treatment" were prepared as the environmental management tools to be utilized by PCS in the effluent monitoring. Although 25 factory inspections were conducted, referring to the "Factory Inspection Manual" between October 2007 and July 2008, due to the lack of the personnel available, both tools have not been fully utilized. Also, the preparation of the "Status of Environment" and the "EAI Review Guideline" have been delayed. As new personnel have been assigned to PCS since October 2008, the Project needs some more time to train the new staff to properly utilize the prepared tools. As regards the educational materials, 2000 copies of the booklet on water environment targeting school children have been distributed to primary schools, the Nakuru Environmental Resource Center attached to the Nakuru branch of the National Library, KWS, NAWASSCO and other relevant organizations.</p>
Causal Relationship	<p>Contribution of the produced outputs to the achievement of Project Purpose</p>	<p>The outputs have effectively contributed to the achievement of the Project Purpose.</p>
Important Assumption	<p>Are activities, outputs and Project Purpose logically linked?</p> <p>Have important assumptions (Lead organizations maintain their cooperation to the project) been fulfilled?</p>	<p>The activities, outputs and project purpose is logically linked.</p> <p>Initially, there was no formal agreement among MCN, NAWASSCO and KWS on how they would collaborate each other in the framework of NEMP in particular and in the water environment management of the Nakuru town in general. The absence of the agreement caused some disagreement and mistrust among three agencies in a way that the monitoring activities were organized. In addition, at the beginning the importance of the water quality monitoring was not fully understood by each agency. Through the participation in the Project and the enhancement of the technical capacity of the staff, the perception of each agency gradually changed. Presently, all three agency is very aware of the importance of the regular water quality monitoring as well as the collaboration with the others in the proper execution of their duties. Further, the Project made a great effort to conclude MOU to clarify the roles and responsibilities of three agencies in water quality monitoring. Although there is still a problem to be settled with regard to the financial arrangement, each agency is now working much more closely with the others and the tripartite meeting is held monthly to discuss any issue related to their operation in water quality monitoring. Thus, after the conclusion of MOU, the important assumption has been fulfilled.</p>
Promoting Factors	<p>Promoting factors</p>	<p>(Promoting factors) The conclusion of MOU has had a positive impact on the implementation of the Project activities. In addition, three agencies as well as the staff working there have become aware of the importance of consistent water quality monitoring in the execution of their institutional mandates. (Impeding factors) The number of staff assigned to PCS has been never sufficient against the workload of the section. In particular, since November 2007 after the core staff of PCS were transferred back to the Ministry of Health, the Project activities under Output 2 have become stagnated due to the lack of personnel. Further, the post-election violence made the Project activities standstill for over several months. It was difficult to undertake any monitoring activity and for more than five months the experts were unable to visit Nakuru due to the security concern.</p>

Efficiency

Evaluation Questions		Findings
Questions	Specific Questions	
Appropriateness of Inputs	Japanese inputs	In general, the Japanese inputs were appropriate in quality, quantity and timeliness.
	Kenyan inputs	The lack of personnel in PCS, especially after the transfer of core staff in October 2007, caused a serious set-back in the Project implementation. Although the Project received some more staff starting from October 2008, it will be extremely difficult for the Project to complete all the planned activities before the Project termination in February 2009 since most of newly assigned staff have limited experiences in environmental management. In addition, it was more than one and half year after the Project started when the Project was provided the office in PCS in which all experts and CP could be accommodated with proper infrastructure such as telephone lines.
Utilization of Inputs	How effectively have the inputs been utilized?	Most of the inputs have been effectively utilized. However, after the transfer of core staff in October 2007, due to the lack of the CP in PCS, the experts were not able to undertake their assignments as planned.
Project Management	Has the Project been properly managed?	The Project has been generally well managed. The tripartite meeting has been held every month to share and discuss problems and issues among three agencies. However, the frequent change in the management of the agencies have slowed the pace of some activities.
Achievement of Outputs	Have outputs been produced?	The Outputs 1, 3 and 4 have been mostly produced. Some remaining activities are likely to be completed by the end of the Project period. However, it is unlikely all the activities necessary to produce Output 2 to be completed by February 2009 since the Project must adequately train the staff, who were and will be newly assigned to PCS, to properly undertake their duties.
Conversion of Inputs to Outputs	Is there any factor hampering the achievement of outputs?	The fewer number of PCS staff than agreed in the R/D has made it very difficult for the Project to implement the activities as planned. Further, the post-election unrest halted the project activities to be implemented over a few months. A number of factories were closed or downsized their operation. The monitoring activities could not be undertaken in such areas where the situation is volatile.
	Adequacy of activities to produce outputs	The Project spent a considerable time for the physical establishment of PCS and the coordination among three agencies although they were not specifically identified as an "activity" in PDM. Other than that, the planned activities were sufficient to produce the outputs. Both technical and administrative capacity of WQTL has been greatly enhanced, which not only enables the production of Output 1 but also greatly contributed to the production of other outputs through the provision of reliable analyzed data for the concerned agencies. On the other hand, it requires more time to complete some activities to produce Output 2. The completion of such activities is expected to bring about the production of Output 2.
	Adequacy of inputs to produce outputs	Inputs were mostly adequate to produce the Outputs, except for the fewer number of CP in PCS than that agreed in R/D.

Impact

Evaluation Questions		Findings
Questions	Specific Questions	
Impacts on the achievement of Overall Goal	Prospect for the achievement of Overall Goal	The prospects for the achievement of the Over Goal is positive. A number of projects and activities on the environmental management have been taking place in the Lake Nakuru Catchments. Those organizations and agencies which are working for the environmental issues in Nakuru are also forming the forums to share the information and to discuss issues and problems related to their activities. However, the cooperation among the organizations could be further strengthened to enhance the effectiveness and efficiency of the activities which each organization is implementing.
	Potential contribution of the Project outcome to the achievement of Overall Goal	The proper environmental management of Nakuru town will directly contribute to the improvement of environment status in the Lake Nakuru catchments as a whole since most pollutants in the catchments are produced inside the town. Thus, the achievement of the project purpose is likely to contribute to the overall goal achievement.
	External conditions to promote/hamper the achievement of Overall Goal	Since the jurisdiction of MCN is inside the boundary of the municipality, MCN needs to collaborate with NEMA, who has a mandate on the environmental issues throughout the district including the catchment. For NEMA to be effectively coordinate the stakeholders as well as their activities, the enhancement of their capacity is required.
	Unintended positive impacts	MCN and WQTL offer internship for university students, who also benefit from the technologies transferred in the Project. Further, in preparation of the outreach programmes, PCS established a linkage with the Department of Education of MCN.
	Unintended negative impacts	No particular negative impact is observed.

Sustainability

Evaluation Questions		Findings
Questions	Specific Questions	
Policy / Institutional Sustainability	Is the Gov't policy on environmental management likely to continue?	As reviewed in the section for the project relevance, the Project is well in line with the relevant policies of Kenya.
	Are MCN, KWS and NAWASSCO likely to continue their commitment towards the water quality control?	All three agencies have interests attached to the improvement of the water quality in Nakuru town. MCN has a mandate as a local governmental body to promote the healthy and clean environment including water. KWS has a strong interest in water quality control in rivers and sewerages in the town because the Lake Nakuru receives all the down-flow of water coming from the town due to the location of the lake. And NAWASSCO has a mandate in the provision of the potable water acceptable for drinking and the maintenance of sewerage. In view of this, three agencies are most likely to continuously work for the improvement of water environment.
	Is MCN likely to take a leading role to coordinate the stakeholders for the environmental management of Nakuru town?	MCN has a mandate to keep the environment of the town clean and healthy, which is supported by the environment related laws of Kenya. They prepared the Environmental Management By-Laws in line with the EMCA and announced in 2007. As regards the relationship with other organizations, MCN is coordinating the tripartite relationship with KWS and NAWASSCO. Also, it is a convener of the Nakuru Environmental Consortium in which 19 organizations working for the environmental issues in Nakuru participate. Although in terms of human resources and financial endowment, the capacity of MCN is not still satisfactory to execute all the responsibilities of the environmental issues in the town, they have been gradually building up such required capacities.
	Are MCN, KWS and NAWASSCO likely to continue their coordination mechanism agreed in the MOU of April 2007?	All three agencies are aware of the importance of the cooperation because their duties are closely interrelated. Thus, they are likely to continuously work closely. However, the financial arrangement agreed in MOU with regard to the water quality monitoring activities has not been materialized, yet. In order to keep this collaboration, the financial arrangement should be in place immediately.
	Is the collaboration with other stakeholders and related organizations/agencies likely to be sustained?	The collaboration among the three agencies, namely MCN, NAWASSCO and KWS, is likely to be continued even after the termination of the Project. With respect to the collaboration of MCN with other stakeholders, although there is a room to be improved, they have been networking among those working for the environmental issues in the town.
Financial Sustainability	Are MCN, KWS/LNMP and NAWASSCO likely to secure the sufficient operational budget to sustain/expand its assigned activities?	<p>(Monitoring Activities)</p> <p>The MOU signed in April 2007 explicitly stipulates the financial responsibilities of three agencies in water quality monitoring. In view of this MCN has allocated Ksh. 1.4 million to the analysis of industrial effluent for FY 2008/09, considerably incremented from Ksh. 0.5 million of the previous FY. KWS has budgeted Ksh. 40,000 for the monitoring activities each month while previously little budget was allocated for this endeavour. NAWASSCO is also planning to allocate Ksh 5 million to the operation and maintenance of WQTL for 2009. Further, it is agreed in MOU that NAWASSCO will be paid by MCN and KWS for its WQTL testing service rendered. Provided that all the planned budget is properly executed, most activities carried out under the Project are likely to be continued. However, up to November 2008, the actual budget disbursed is nominal although it was agreed that each agency would start the execution of allocated budget to the monitoring activities starting from August 2008. Because the Project has financed almost all the expenses related to the water quality monitoring and analysis for the last three years, the monitoring activity of MCN & KWS may be seriously affected unless each agency respects its responsibilities agreed in MOU and reach the workable consensus in the service charges.</p> <p>(Environmental Education)</p> <p>The outreach programmes organized under Output 4 have been exclusively financed by the Project. It requires some arrangement for the programmes to be duly continued.</p>

<p>Technical Sustainability</p>	<p>Are CP able to undertake O&M of equipment properly (MCN, KWS/LNNP and NAWASSCO/WQTL)?</p>	<p>The relevant training on O&M has been organized for WQTL staff and no sophisticated technology is required to maintain the provided equipment, thus, it is likely that O&M will be properly performed by them after the termination of the Project if the required budget is allocated and disbursed.</p>
<p>Is the transferred technologies likely to be maintained (MCN, KWS/LNNP and NAWASSCO/WQTL) in the relevant institutions?</p>	<p>The technical capacity of the WQTL staff has been notably enhanced. Also, the documents such as the laboratory Control Manual and the Standard Operating Procedure were prepared to standardize the laboratory operations and have been in use. Further, the Document Control System has been established for the proper filing of various documents. Since the number of laboratory technologies is only two, in case of the transfer or turn-over of one of two technologists, WQTL activities may be seriously affected. In case of PCS, the technology transfer is still under way. In particular, the Project needs to concentrate in the remaining Project period on the training of new staff assigned to PCS from October 2008.</p>	<p>The technical capacity of the WQTL staff has been notably enhanced. Also, the documents such as the laboratory Control Manual and the Standard Operating Procedure were prepared to standardize the laboratory operations and have been in use. Further, the Document Control System has been established for the proper filing of various documents. Since the number of laboratory technologies is only two, in case of the transfer or turn-over of one of two technologists, WQTL activities may be seriously affected. In case of PCS, the technology transfer is still under way. In particular, the Project needs to concentrate in the remaining Project period on the training of new staff assigned to PCS from October 2008.</p>
<p>Is the level of technical capacity of CP sufficient to sustain the present activities (MCN, KWS/LNNP and NAWASSCO/WQTL)?</p>	<p>(WQTL) The transferred technologies have been well adopted by the laboratory staff. Their level of knowledge and skills in sampling, analysis and laboratory management has been remarkably improved since the commencement of the Project. Their technical capacity is sufficient to continuously undertake the present activities. (PCS-Factory Inspection) The staff have sufficiently improved their understanding in enforcement process. They can undertake the factory inspection, referring to the guideline and the manual prepared by the Project as the environmental management tools. However, the number of staff is minimum and they can't undertake all the responsibilities related to the factory inspection and law enforcement in the municipality. Now new staff are joining in the PCS in response to the JICA's request to increase the number of staff as agreed in RVD. The training for the new staff should be duly conducted to enable PCS to properly undertake their duties. (PCS-Environmental Education) The outreach programmes under Output 4 were organized by PCS in collaboration with NGOs and the other governmental offices. Taking into consideration the number of staff, their expertise on the environmental education and budget availability, it is recommendable PCS to organize the programmes in collaboration with other organizations as they have been doing to complement each other.</p>	<p>(WQTL) The transferred technologies have been well adopted by the laboratory staff. Their level of knowledge and skills in sampling, analysis and laboratory management has been remarkably improved since the commencement of the Project. Their technical capacity is sufficient to continuously undertake the present activities. (PCS-Factory Inspection) The staff have sufficiently improved their understanding in enforcement process. They can undertake the factory inspection, referring to the guideline and the manual prepared by the Project as the environmental management tools. However, the number of staff is minimum and they can't undertake all the responsibilities related to the factory inspection and law enforcement in the municipality. Now new staff are joining in the PCS in response to the JICA's request to increase the number of staff as agreed in RVD. The training for the new staff should be duly conducted to enable PCS to properly undertake their duties. (PCS-Environmental Education) The outreach programmes under Output 4 were organized by PCS in collaboration with NGOs and the other governmental offices. Taking into consideration the number of staff, their expertise on the environmental education and budget availability, it is recommendable PCS to organize the programmes in collaboration with other organizations as they have been doing to complement each other.</p>
<p>Promoting & hampering factors on sustainability</p>	<p>Promoting and hampering factors</p>	<p>(Promoting factors) Through the participation in the Project three agencies have become fully aware of the importance of the water quality monitoring to properly execute their mandates. Thus, their commitment towards the implementation of regular monitoring is very high. Also, the agencies have been convinced of the benefit they can get through the cooperation and coordination. (Impeding factors) The transfer and turn-over of trained staff may seriously affect the project sustainability unless some mechanism to assure the continuity of the activities is in place. Also, if the financial arrangement agreed in MOU is not materialized, the monitoring activities are most likely to be halted.</p>

2 . インタビュー結果

Interview Summary

JAT: 1

Indicators

I think it was very difficult to identify quantitative indicators before the commencement of the Project since there was practically nothing in MCN. Nobody could be sure how far the Project would achieve in four years.

Chief Advisor

It would have been good if the Project had a chief advisor stationed throughout a year. But I don't think the absence of CA had that much negative impact on the progress of the Project.

MCN

The problem is that there is very few staff in PCS, which has been having a serious impact on the progress of the Project. Only one staff is available to do everything. For example, while PCS is a secretariat of the tripartite meeting held every month, JAT always needs to remind him of the organization of the meeting. He simply does not have a time to undertake every assignment of PCS. Since more staff were assigned to PCS recently, I hope the things will move forward. I hope Mr. Gicheru, who has been back to PCS after one year assignment in the Ministry of Health, and Mr. Gachomba, head of PCS, will take a lead in the PCS since they know the duties of PCS and their technical capacity is good enough to handle these duties.

As regards the output 4, unfortunately I am not convinced that the PCS will coordinate NGO and hold environmental activities with their own initiative.

MCN has allocated 1.4 million Ksh to PCS for the monitoring activities and JAT has already made a plan for activities which can be undertaken within the available budget. So, in the remaining period, the Project will implement activities according to this plan.

WQTL

I think WQTL has enough technical capacity to undertake their assignments, but they may need some system for cross-checking of the data. The big problem is about maintenance of the provided equipment. Presently, the Japanese side pays all the expenses related to the maintenance. I have a doubt that NAWASSCO will be capable to allocate sufficient budget for this purpose.

Data utilization

As regards the data collected and analyzed by WQTL, NAWASSCO utilizes it for the operation of their water and sewerage system. In PCS, they use the data for law enforcement against the factories. KWS is also using the data for the water quality management of the park.

It has not been clear who will be responsible for the GIS DB. The LUO project supported by Europe is under MCN and working on the GIS DB of Nakuru town. But it is unlikely that the Project will ask the LUO project to take over the responsibilities regarding the GIS DB because of the differences of the

operational modalities of two projects. I heard MCN was considering the recruitment of IT personnel for the DB operation. But I am not sure if it will be materialized in any near future.

JAT: 2

TOR

Mainly I am working for the development of module which interfaces with GISDB. For this, I am not working with any CP. This module is to be utilized by the Kenyan side after it is developed and completed. Other than the development of module, I supervise WQTL in water quality monitoring and PCS in factory inspection as well as do some work for the development of GIS DB.

Module

The module which I am now developing will be very user-friendly. It is simple to operate and requires no update. The Project expects KWS, WQTL, Egerton University, and NEMA to be a user. Also, I think MCN can be a user for the formulation of environment policy although MCN is not that much active for the formulation of such policy. The training on the module will be organized next year, inviting all stakeholders.

GISDB

It has not been decided who is going to manage DB and to update it whenever necessary. The LUO Project personnel may be capable to undertake such activities but I am not sure if such arrangement can be made with the LUO Project.

MCN

After the transfer of core staff, PCS did not have any personnel whom I could work with. As some staff were transferred to PCS recently, they will be intensively trained with the manuals and guidelines prepared by the Project for the remaining project period.

Output 4

The staff is more motivated than before. The water quality monitoring workshop targeted the primary school children was organized recently and the WQTL and PCS staff did a quite good job there. However, I doubt they will organize any event for environmental education with their own initiative. If another organization requests them for the assistance for the organization of an event, I think they will assist but not their own initiative.

WQTL

The number and the types of the equipment provided for WQTL are appropriate, I think, in particular, to analyze the heavy metals. But it may be difficult for them to properly maintain the equipment. Presently the JAT members procure some spare parts in Japan and bring them to Kenya at the time of their assignment. I am not sure if there is any agency in Nairobi who can take an order from WQTL.

JAT: 3

Project Progress

The activities under Output 1 have been duly implemented but the progress of the activities under

Output 2 has been slow due to the lack of personnel.

Provided Equipment

I don't think the provided equipment will be properly maintained after the Project is completed. The cost of maintenance is high and some spare parts are not available, I think. The provided equipment might be necessary for WQTL to be accredited by NEMA but I think the number of provided equipment is too many for WQTL to properly maintain.

Sustainability

I doubt the Project sustainability. The three agencies have been completely counting on the Japanese side to undertake the monitoring activities. Although they agreed in the contribution of some money to continuously conduct the monitoring activities, in reality they never did so. Since KWS agreed to start their payment for WQTL for the service they render from this August, the Japanese side stopped any disbursement of money for the activity. The monitoring activity became standstill for two months because KWS failed to meet their responsibility. The Japanese side was required to resume the financial contribution to the activity.

GIS DB

GIS DB was created in collaboration with other stakeholders. It was distributed to those organizations which were interested to use it. It requires the key to update the DB and there is only one key available. Now MCN has the key and any organization which wants to update it will request MCN for the key. I don't think it requires the frequent update.

JAT: 4

Availability of Spare Parts

I don't see any problem to procure the spare parts for the equipment provided by this Project although there may be difficult to procure them for the equipment provided in the grant aid scheme in 1995.

Other Environmental Tools

The state of environment report and EIA review report will be prepared by the end of the Project.

GIS DB

NAWASSCO and KWS are interested in GIS DB prepared by the Project. In case of PCS they have little expertise on it. In case of MCN maybe LUO project is the only section where the staff have technical capacity to utilized it. A key is required to update and revise the content of GIS DB. The key is now with PCS. So, the stakeholders can come to MCN to borrow the key. I hope their communication will be enhanced through the exchange of the key.

Environmental Management in Catchment

Since the MCN does not have jurisdiction beyond the town boundary, I think NEMA should be the one to coordinate the environmental management in catchment. Since NEMA is a secretariat of the Nakuru District Environmental Committee, they can coordinate the stakeholders working in the area. I don't think it is necessary to create a new forum, particularly focusing on the water issues. NEMA can do it as part of the activities of committee. But I think the committee should be more active. In

February next year we are going to organize the seminar to discuss about the action plans for the effective environmental management of the catchment, accountable organization for each plan and who to be the overall coordinating organization. I hope NEMA will be designated as a coordinating agency. We would like to invite as many organizations as possible, which work for environmental issues although of course those working for the water issues will give a priority.

MCN Leadership in Nakuru Environmental Management

MCN is somehow collaborating with the Nakuru Environmental Consortium. They exchange information among participants. Although I don't think they are actively working together, it is good they have such forum.

Extension Period

It will be difficult to finish thoroughly the training for the new coming staff to PCS by the end of the extension period. But we try as much as we can.

Mao SDI

Mao SDI was initiated by one company to share the information among those organizations working in Mao area. It collected fund from different sources. The Project financially assisted the workshop organized by it last October. It is surely interested in GIS DB created by the Project.

Environmental Education

Although PCS has a mandate to conduct the environmental education program as such, there is no other section in DOE to take over such responsibility. They need work together with other stakeholders to continue such programmes.

DOE: 1

NEMP Achievement

The Project was very timely. We rehabilitated the sewerage facilities and increased the water capacity. But we did not have enough human resources. Also, the contamination of the lake had become serious and we knew all the pollutants were coming from the town.

MOU

Although MCN is a sole shareholder of NAWASSCO, it is an autonomous company. We will pay for the service they render so that we have already allocated 1.4 million. Although very little has been disbursed so far, it will come.

MCN Leadership in Environmental Management of Nakuru

In the town, there is a consortium of 19 stakeholders working for environmental issues in the town called "Nakuru Environmental Consortium". While Practical Action is a secretariat, MCN is a convener. Mr. Kimani of deputy director and I are participating it regularly. We have been collectively working together with these stakeholders. There is also Nakuru District Environmental Committee, whose members are mostly governmental offices. Since their mandate goes beyond our jurisdiction, we are just participating.

GIS DB

I believe information should be accessed by the public. We will manage the created DB since we also have LUO project which is managing the DB. I think they are going to be financed next year as well.

Environmental Management of Catchment

We will continuously working on the environmental issues in the catchment. I have collaboration with Egerton Univ. and the Water Agency for this purpose. The size of the municipality is 290 km² while LNNP covers 188 km² out of 290 Km. However, the area covered by our city planning is 440 km² so that I think we have also interest in the environment management of the catchment.

Environment Education

We will continue. AFD (French ODA agency) is going to implement the landfill project. In the project, the community sensitization is one of the key components. PCS can collaborate with this. Also, it is possible to work with KWS.

DOE: 2

MOU

We have allocated about 1.4 million for the monitoring activities. This does not include the money for the service rendered by WQTL. NAWASSCO is part of MCN.

GIS DB

I know about it which was explained by the Project in the District Environmental Committee the other day. MCN hired two IT engineers for the maintenance of communication system in MCN. Since we have also LUO project, possible merger of two projects to house the GIS DB could be possible. But we need to assess if the PCS alone can handle the task regarding the DB, we should go ahead with merger of two projects, or we should ask some other organization to administer it.

Environmental Education

MCN has a mandate for the public awareness raising on environment. If PCS is going to organize a programme, they should submit a proposal for budget. PCS has a mandate for environmental education. The Department of Education has been contacted by one municipality in Finland for the development of the environmental education curriculum. DOE can work with them in this activity.

PCS: 1

MCN

MCN has been supporting the Project such as through the provision of fuel.

MCN has a mandate in law enforcement, environmental education of the public and the leadership in the environmental management. But our capacity is not as good as should be.

NAWASSCO/WQTL

Sometimes they don't send the high officials to the tripartite meeting as agreed. But other than that they are collaborating with us and WQTL has been doing a good job. Before the Project we were required to send samples to the government chemist in Nairobi for analysis, which took a quite time, maybe around three months. Now we can take a sample to WQTL. The problem with WQTL is that

they take a time to send us the report after the analysis, taking about one month. They usually don't send us the individual report but combined the result into the monthly report, which they send us every month. But in case of emergency, we request them to send us the result of analysis immediately. And they do it. Since it took a long time before their accreditation, it created difficulties for us in law enforcement. We were not able to use the data analyzed by WQTL for enforcement. But now they are accredited. I think it will facilitate the enforcement process.

KWS

KWS is working with us in sewerage clean-up and also they participate in the tripartite meetings.

GIS DB

I received the training on the operation of GIS DB. But I don't know exactly how DB should be used because the training was just how to operate it. We need to learn how we can make use of it.

Data Utilization

We use the data for law enforcement. The analyzed data is filed and submitted to the Town Clerk through the Director of Environment. But I don't think the data is well utilized for planning or policy formulation.

Tripartite Relationship

The best achievement of NEMP is that it created the good relationship among three agencies. Before we worked independently, only interested in own business and simply blaming the others for not properly working. But now we are very much aware that we need to collaborate to get anything done. I believe the tripartite meeting will continue even after the Project is completed because that is the place where we can raise our concerns and views, and discuss the issues. Everyone of us knows we need such place.

As regards the financial arrangement on the service rendered by WQTL, we have not reached the agreement, yet. I think we need to conclude a small MOU on the issue.

Project Sustainability

MCN has committed 1.4 million Ksh for monitoring activities. Maybe a whole amount will not be disbursed. But I think maybe around 1 million will be disbursed. In general, the allocated budget is effected after December although the fiscal year starts July. This is because MCN receives fees for various licenses around this time of a year. The allocated budget of 1.4 million Ksh has not been effected so far, but I think it will be in next a few month.

I think that two months will be enough to train a new assigned staff in PCS if they are somehow qualified. Although there are some different activities such as EIA, GIS, etc, the staff seconded from the Ministry of Health have had experiences in inspections. So, it should not take that much long before they are able to undertake the assignments in PCS properly. If new staff are assigned on time, they will be able to undertake their duties independently before the extension period of the Project is finished.

As long as money and staff are there, I will see no problem for the Project sustainability.

PCS: 2

MCN

According to the Environment Management and Coordination Act, MCN is a leader of the environmental management of the town and should enforce the law accordingly. But unfortunately, MCN does not have enough resources to meet its responsibilities. Thus, the town is not properly managed.

MCN is also responsible for environmental education of the public. I think there are four entities which are responsible for the public awareness; Public Health and Sanitation/MCN, DOE/MCN, NEMA and NGOs. But MCN has not been doing much. The Project has been doing some outreach programs. But it focuses only on water issues. The environmental education should cover more broad issues. In DOE, I think PCS is responsible for environmental education. Thus, I would like to take my own initiative to undertake the education programs. Although MCN does not have a budget for this type of activity, I want to do it because I have a commitment.

PCS

MCN did not assign the adequate number of staff to PCS regardless of the huge area they need to monitor. Thus, the staff in PCS have been so much overloaded.

Sustainability

The newly assigned staff need to get trained. However, if they have a public health background, I don't think it will be very much difficult for them to undertake their assignment. So, only small training is required for them.

Tripartite Agreement

Because of the agreement, many hanging issues have been sorted out. We did not have much communication among each other before. Now every party is aware of the importance of the collaboration.

NAWASSCO: 1

Participation in NEMP

I join NAWASSCO last year November. I have been participating the tripartite meeting.

Sustainability

We are now preparing for the next year budget and would like to allocate 5 million Ksh for WQTL. Since WQTL is accredited by NEMA, we have been promoting WQTL to private companies. Already two companies have shown their interest to use WQTL. I think many companies not only in Nakuru but in near-by districts will be interested in using WQTL rather than sending their data to Nairobi.

Collaboration with MCN and KWS

We are negotiating with the KWS with regard to the service charge. At this moment, there is a quite gap between what we think and what KWS offers. But I think we will be able to sort it out by December.

MCN is not doing enough for law enforcement on the factories. If they don't properly monitor the

factories, they discharge untreated water to sewerage, which damages our treatment plant. I think the WQTL accreditation will help MCN to act more quickly and firmly. As regard the service charge, we will not have any problem with MCN. Since we pay 5% of our revenue to MCN, we can simply deduct the service charge from this 5%. I don't think there is any problem with this arrangement. Now we deduct their water tariff from this 5%. So it will be the same arrangement.

Law Enforcement

When MCN does not take a quick action against the factory discharging the untreated water, we can go to NEMA for law enforcement. NEMA has that mandate.

NAWASSCO: 2

MOU

KWS and MCN should have started the money allocation for the WQTL service by now. It has been a hanging issue. I think NAWASSCO can open an individual account for the WQTL to make the cash flow transparent to everybody.

WQTL

The provided equipment is fine. But we should recruit more staff. We are expecting the expansion of the WQTL operation once the accreditation is gazetted. My concern is the maintenance of equipment after the Project is completed. I am not sure if all the spare parts can be procured locally and their prices.

MCN

I think MCN should invest more money for the beautification of the town.

Achievements of NEMP

There are three major achievements of NEMP. First is the development of suitable monitoring system. Second is set up the benchmark through the consistent monitoring. Third is the enhancement of the collaboration among three agencies.

Collaboration among three agencies

I think the collaboration will continue. Now the Environment Act of 1999 was enacted. Every agencies need to act accordingly.

GIS DB

NAWASSCO is very much interested in GIS DB created by the Project. Even we are planning to establish GISDB center in NAWASSCO. It is very important as a water supply company to use the GIS DB for planning, monitoring, etc. Since the Project created the DB, it would be nice we can share it with other stakeholders. We should make an arrangement on how to go about it.

WQTL: 1

MSN

MSN provides a vehicle for our sampling activities. Their capacity is weak in law enforcement. PCS is more concentrating on the inspection than sampling. They don't bring us as much samples as they

should. Also, they don't provide us with the report on the inspection as well as on how the data analyzed by us was utilized while they ask us to report the results of the data analysis immediately. Since NAWASSCO is responsible for the maintenance of sewerage and treatment plants, we want to know what action has been taken or not taken against the polluters who discharge untreated water to the sewerage. In this aspect, KWS is the same. They also do not provide us with any report on their activities resulting from our analyzed data. I would like to raise this issue in the next tripartite meeting.

KWS

I don't think KWS has enough capacity in terms of the utilization of the analyzed data. In fact, they don't do anything while they accompany with us for sampling. Their research capacity in water quality monitoring is weak. We even interpret some of their data after analysis since they don't have a capacity.

WQTL before the Start of NEMP

Before the start of the NEMP, our laboratory was so much under utilized. No regular monitoring was conducted and we did sampling with own initiative. Even most chemical provided under the Grant Aid remained even at the time when NEMP started. So, NEMP activated the laboratory.

MOU

MOU was signed more than a year ago but I don't see it implemented. We agreed in the financial arrangement. KWS and MCN should start the payment for our service as stipulated in MOU. At present, KWS pays for us the lunch allowance but that is the all. If they want our service, they should pay for that. If they don't, we simply stop our service and they should look for the other laboratory.

Sustainability

Before the NEMP started, our management was not much concerned about the laboratory. Very small budget was allocated to us. Because of the inputs provided by the Project to WQTL, the management has started recognizing our work. I think now the management is aware of the importance of monitoring. But the sustainability is really depending on the money. Our technical capacity is good enough to continue the present activities even after the Project closed. But to sustain the activities, we need to have a budget. I together with Mr. Goto calculated the budget which WQTL required to undertake all the present activities. It was 3.7 million Ksh. If we limit our activities only for those mandated for NAWASSCO, that are sewerage and potable water quality monitoring, it requires us around 1 million Ksh including our salary. I don't know if our management will allocate that much amount of money or KWS and MCN properly will pay for our service to cover our cost. If money is there, I don't think there will be any problem of the maintenance of the equipment. Any spare part can be procured through the agency in the country, I believe. In addition, we must be accredited. I know we have been listed for the gazette but until gazetted, nothing is confirmed. If we are accredited, we can market ourselves. So, I am really waiting for it. I have also a concern for our staff. We need to have some more qualified staff to run the laboratory in a satisfactory manner.

WQTL: 2

MCN

They do good in the Project coordination.

KWS

The commitment to the Project is questionable since they make no financial contribution.

Data Sharing

The environmental status report should be prepared by the MCN to inform the public of the environmental status of the town. I think KWS can assist MCN in this endeavour.

GIS DB

NAWASSCO is interested in the utilization of GIS DB for effective management of sewerage.

Maintenance of Equipment

We have received adequate and necessary number of equipment. I don't think we will have a problem for maintenance. WQTL is now requesting the budget for the conclusion of service contract with the maintenance agency, whose cost is around 100,000 Ksh. I think the management has understood the needs of this service contract.

MOU

MOU provides the foundation of our commitment. But the financial arrangement agreed in MOU has not been materialized. We have kept on discussing about this issue for the last three years without any success. We should stop discussion and take an action. NAWASSCO is open for any discussion in order to reach the agreement with KWS but they should not expect us to provide them with free service.

WQTL: 3

Before the NEMP

WQTL was very inactive. We did not have transportation by ourselves. Only when the head office sent us the vehicle, we managed to go for sampling. The monitoring was irregular and few parameters were checked. The NEMP changed everything.

Sustainability

Our technical capacity is very much enhanced. We will be able to continue our work after the termination of the Project. I believe NAWASSCO will allocate the budget to WQTL to sustain our activities because the head office is aware of the importance of the WQTL. The maintenance of the equipment may not be easy. Maybe some spare parts are not available here in Kenya but I think there should be an agency which has a contact with the company abroad.

Utilization of data

The analyzed data is utilized in NAWASSCO for the operation of water and sewerage facilities. As regards MCN and KWS, I am not sure how they utilize the analyzed data which is sent from us.

MCN

Their performance has been sluggish because of the lack of personnel. The number of factories inspected each month is down considerably compared with before.

Financial Arrangement with MCN and KWS

I think they will pay for our service since they agreed in the MOU. But of course, saying is different from doing.

No Long-term Chief Advisor

Since Mr. Goto laid a foundation of the Project, I don't think there has been any problem caused because of the absence of long-term chief advisor. If anything happens, Mr. Watanabe takes care of it.

PDM/PO

I am not aware of it.

WQTL: 4

Problems

We have a problem of vehicle which is shared with MCN. Also, our workload is too much.

Analyzed Data

The data we analyzed is shared among stakeholders. We send them report immediately.

MCN

MCN should do more to raise awareness of the public on the environmental issues. NEMP has done some awareness raising activities but it is very small scale, not covering a whole town. People simply drain the wastewater and MCN does not apply the by-law, which they enacted, for the enforcement.

Financial Arrangement with MCN and KWS

MOU stipulates the financial commitment of MCN and KWS to the WQTL service. They should stick to what they promised for WQTL to be properly operational.

PDM/PO

I am not aware of it.

KWS: 1

What KWS do in the framework of the NEMP

We request WQTL to undertake water quality monitoring in the LNNP. We provide WQTL with the lunch allowance for staff, vehicle fuel and security to undertake the monitoring. Before WQTL was established, we needed to send the sample to Nairobi for analysis. After WQTL was established and before NEMP started, we had our laboratory technician in WQTL to analyze our data. But it was not consistent and parameters were few. Now the monitoring is conducted regularly and we can obtain the analyzed data consistently. It is of great help for us to manage the park properly.

Achievement of NEMP

There are three major achievements of the Project. One is that they created lots of awareness among the stakeholders on the water quality monitoring. Second, the training they provided was very useful and enhanced the capacity of the staff. Third, the monitoring has become consistent and more parameters can be analyzed than before.

Role of MCN

MCN could do more for the environmental management. They don't properly control the waste water in the town so that those untreated water is drained into the Lake Nakuru. Also, they don't collect the garbage properly. They should more vigorously enforce the by-law which they enacted last year. But since WQTL is accredited, it will help MCN to deal with the offenders more appropriately.

Role of WQTL

They have been doing well but their analysis sometimes takes time and the report does not come out on time. If anything is wrong, we need to take an immediate action. I hope they will report us back more quickly.

Financial Contribution

In accordance with the MOU signed among three parties, we are ready to pay for the service rendered by WQTL. Since we are so much in need of the constant and reliable data, we surely need their continuous service. We are ready to pay. But as regards the amount we are still in negotiation. We need to know the breakdown of the charge which WQTL is asking for. We can't simply pay the amount requested by WQTL. Accountability must be there.

Environmental Management of Catchment

I think MCN is the one who needs to take a lead. But if they are not capable, we may do it.

Environmental Education

We have a good experience and a commitment in environmental education. We have organized about 50 community groups in the town as well as the surrounding area for the promotion of the environmental issues. The communication warden is responsible for this. We also have resources. It would be possible to collaborate with MCN in environmental education if MCN has a commitment.

KWS: 2**MCN**

MCN is weak in capacity. They can not execute what they are responsible for.

NAWASSCO/WQTL

They do OK. I think WQTL has changed a lot.

Sustainability

I have a concern about the sustainability of the Project. Because of the decrease in the number of the visitors, the financial situation of KWS is dire this year. The revenue is almost half of the usual year. Thus, we are forced to reduce the budget allocated to the monitoring activities from 40,000 Ksh to 20,000 Ksh while NAWASSCO is asking us around 80,000 Ksh for the service. We are thinking that instead of asking WQTL, we will do sampling ourselves and send sample to WQTL for analysis to minimize the cost. As we are also considering increasing the monitoring points, we may recruit some more staff to do sampling by ourselves. As regards WQTL, I don't know how they are going to sustain their present activities. They need to procure chemicals and spare parts, maintain equipment and make a necessary arrangement with MCN for transportation. I don't know if they will manage all of

these by themselves. And MCN has no capacity for law enforcement.

Next week the representative from three agencies will sit together to discuss the issues related to financial arrangement. I hope the things will be sorted out.

GIS DB

I think MCN should be responsible for the GIS DB developed by the Project. I heard they were going to recruit IT personnel, who should be able to manage DB properly.

Environmental Management of Lake Nakuru Catchment

I think KWS can take a leading role in the environmental management of Lake Nakuru Catchment. There is task force established under Prime Minister to work on the environmental issues of the Catchment. In that KWS is heading the enforcement. I believe we have enough capacity and resource to coordinate the stakeholders and take a leading role.

KWS: 3

Arrangement with WQTL

WQTL is doing a good job. After the termination of the NEMP, I understand KWS need to make a payment for the service rendered by the WQTL. I think KWS will pay for it because the water quality monitoring data is very important to the preservation of the lake. But the detail should be agreed. I understand KWS allocates 41,000 Ksh every month for the monitoring.

Before the NEMP

KWS was monitoring the water quality before the NEMP started. But the parameters were few. The number of the monitoring places was also few. And the monitoring was not undertaken regularly.

Utilization of Data

We use the outcome of the analysis to manage the park properly. If anything is found wrong, we will identify the source of the problem and try to take an action. Further, the analyzed data is also utilized for the environmental education of the public.

KWS: 4

Financial Arrangement

I have been informed by my subordinates about the MOU and I know of the financial arrangement between KWS and NAWASSCO. We are very much aware of the importance of regular water monitoring. We have no intention to overlook what we signed. But this year has been different from a usual year. We have a serious problem in the number of tourists. Now it is gradually recovering but still I can say the number of tourists we are receiving now is almost 50% of a usual year. We have serious financial constraints. About water quality monitoring we have a commitment and we have an intention to work with NAWASSCO but our financial situation is very difficult now. I hope it will go better. In fact, we were very happy to hear the extension of the Project. I think by the time when the extension period is finishing, we will be in a better position.

Environmental Education

We have no problem to collaborate with the MCN or any stakeholder in the environmental education. We have experiences and some resources. Because pollutants are coming from the town, to keep the lake healthy we need to collaborate with MCN. In fact, what we need is an idea. We can sort it out how we can collaborate with them.

NEMA: 1

Role of NEMA

Our mandate is to supervise and coordinate all the environmental activities in Nakuru District. The details are as follows:

- Provision of environmental awareness and education information
- Facilitation of public participation into the environmental activities
- EIA review
- Inspection of all facilities in the district which have potential to damage environment
- Follow up for the facilities / projects if they are implementing the environment management action plan which they included in their environment audit report submitted to NEMA.
- Secretariat to the Nakuru District Environment Committee
- Inventory of all illegal dumping sites
- Inventory of all facilities which have not submitted the audit report
- Organization of environmental event
- Coordination of the formulation process of District Environmental Action Plan
- Preparation of State of Environment
- Facilitation of the NEMA accreditation process
- Compliance and enforcement
- Process licenses such as garbage collection

Relationship with MCN/PCS

We coordinate with PCS over our works. For example, we go to the inspection together. Also, we invite PCS to the environmental programme organized by us .

Relationship with NEMP

We participate in the tripartite meetings and seminars organized by the Project. We advise the Project on the environmental issues in the district.

GIS DB and Coordination among Stakeholders

Coordination of stakeholders engaged in the environmental activities in the district is one of our mandates. We will continuously do it. I have not seen the GIS DB created by the Project. But I think it will be very important to share the information updated by individual organization among all stakeholders. Some information is useful to the other organizations as well. We need to set up the mechanism to share the information.

Stakeholder: 1

Relationship with NEMP

We are sharing the information and data with NEMP. Also, we received the GIS DB, which is very useful for us to implement our activities. For example, we can use it for planning since we can get more information through GIS DB with regard to the community which we are working. Previously we used GIS DB prepared by LUO project. But NEMP GIS DB is more comprehensive.

GIS DB

After the completion of the Project, the GIS DB can be housed in one of the following three places so that DB can be well utilized and updated.

- Nakuru Environment Consortium (consortium of organization working on environmental issues in Nakuru area)
- Mao SBI (clearing house of various data)
- LUO Project (prepared the GIS DB of Nakuru town)

MCN

MCN has been so much capacitated since the Project started. But they are not doing enough with regard to the law enforcement.

After the Project

I think MCN, Water Resource Management Authority or Kenya Forest service can be a leading agent to organize the stakeholders for the environmental management of Lake Nakuru Catchment, replacing what the Project has been doing. The Project has done a lot to coordinate stakeholders. We should meet again before the Project is closed so that we can make a necessary arrangement to properly take over what the Project has achieved.

Stakeholder: 2

Relationship with NEMP

Since October 2007 I have been working with the Project on the public outreach programme on the water quality. Our entry point is school. Last year we submitted the proposal to the Project. Although it has three phases, the Project has so far financed only phase 1. We started with the baseline survey to establish the benchmarks and based on them we carried out a workshop training school management committees and students in the environment clubs. We provided the technical inputs while the Project provided the fund. The workshop was very successful.

Capacity of PCS

PCS have little capacity to initiate or coordinate the outreach programmes. They are overwhelmed by the other assignments.

Sustainability

I don't think there is any mechanism established in PCS to continue such programmes that we implemented.

Nakuru Environmental Resource Center

I know the resource center but I don't think it is well utilized.

Stakeholder: 3

Relationship with NEMP

Initially I was reached by Ms. Margaret of PCS after my presentation in the Nakuru Environment Consortium. She was interested in my presentation and wanted to work with me. At that time, the Project was preparing the booklet for school children on water. I contacted the schools, mobilized the teachers and streamline the content of the booklet in line with the syllabus. Then, we finalized it. At least 10 booklets are distributed to each primary school. I know they have been utilized in school because they are closely associated with the textbooks and syllabus. As regards the workshop organized by the Project for school children, SCEP coordinated but PCS and I were involved in planning, coordination and everything else. The workshop was quite successful.

Policy of Department of Education on Environment

As Education department, we are interested in environmental education. But unfortunately, environment is not one of the priority areas in the Ministry of Education in terms of budget. They allocate a budget for HIV/AIDS, peace, etc. Although we have no budget for environmental education, if there is a donor, we are very much willing to collaborate.

Sustainability

We should continue this kind of activities to educate the public. Since the Project is phasing out, I think we need to formulate a workable plan. I know PCS has also no budget for the activity. We can do something together even without money but it is good if we can have small money. I know KWS has some resources but I never accessed to them. I would like to contact with them to know if we can something together.

Stakeholder: 4

SUMAWA Project

Our project is doing research and some outreach programmes. We are working for the improvement of the water quality of Njoro river. We facilitated the operation of River Njoro Water Users Association. There are four associations in this area. We raised their awareness on how to protect river and improve its quality. The Water Act was enacted in 2002. The activities of the association are in accordance of this Act. Also, we send the publication to the policy makers about the results of the research we conducted to raise their awareness on the issues of environment and pollution. This project is now six years old and finishing next year June.

After the completion of the project, the University will take over what we have been doing. It will establish the Center of Excellency for Watershed and Research Management and Training. Since the university is an autonomous agency, I think the allocation of the budget to this center will be OK. In fact, the people who will work for the center are the university staff. Thus, there is no need for the additional salary.

Relationship with NEMP

I have been communicating with the Project now and then to exchange information. Some time ago our people were trained by the Project on water quality monitoring.

GIS DB

I know very well that they have been creating the DB. I am thinking to enrich what is there and afterwards to tell stakeholders what is available in the DB. We can also use it for the training of the students.

Collaboration among Stakeholders

The collaboration among stakeholders is very important. There are the Nakuru District Environmental Committee and Nakuru Environmental Consortium. The committee is not active and they talk about something very general and they hardly translate what they discussed into the action. The consortium is a little bit better. It would be nice if we could create some structure among the stakeholders who are engaged in research on the water environment in this catchment so that we can work for the common goal. KWS, Egerton, NEMP, etc. can join. Since MCN is working only for the town, KWS for the park and NEMA is very weak in capacity, I think Egerton could be the focal point in this.

Information Sharing

PCS could share the information with regard to what they are doing in water quality monitoring. But MCN is not usually willing to release the information. The information should be reached by the public.

Stakeholder: 5

About LUO Project

We are two in the Project funded by Swiss. Both are employees of MCN. The Project started in 2003. For the first two years, we did not have even an office in MCN. We were housed in the NGO called Practical Action for those years. We are mainly focusing on the urban development and creation of GIS DB in the town. By the end of this year the funding will be finished. Since we are the employees of the MCN, we will continue working on the same activities. We will use this office and all the equipment available in this office. But about the update of the content, I have a concern since we can't expect much budget for our activities. I used to be under the DOE but now I am with the Office of Town Clerk. To disseminate the information from MCN requires the cumbersome procedure. Since the town clerk is the one who can decide on this, it is good for me to be with the office of town clerk.

Relationship with NEMP

In the creation of DB, we contributed to some information. I have a concern what is going to happen to DB created by NEMP. If PCS will take over the DB, they need to get trained at least about how to retrieve the data. Since we are also working on GIS DB, we should look for a way to collaborate.

EVALUATION QUESTIONNAIRE for staff of MCN/PCS, NAWASSCO/WQTL and KWS/LNNP

Project Title : Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Areas (NEMP)

Name:

Position / Organization

Period of assignment in the Project:

Concerned Expert:

Number of respondents: 12

0. Implementation Process

1: Not at all 2: Rarely 3: More or less 4: Very much 0: Don't know/no answer

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
0.0 Assignment	0.0 How much do you spend your time in the office for the Project activities and what are your assignments in the Project?		2	2	1	7			
0.1 Implementation of Activities	0.1.1 Have the Project activities been carried out as planned?			7	5				3.4
	0.1.2 If not, what were the problems?								
	0.1.3 How did you cope with the problems?								
0.2 Technical Transfer	0.2.1 Do you think the Japanese experts have sufficiently supported you to enhance your technical capability?		1	2	9				3.7
0.4 Communication between Kenya CP and Japanese Experts	0.4.1 Do you think that you have had a good communication with the Japanese experts?			2	10				3.8
	0.4.2 If not, what were the problems and how did you cope with them?								
0.5 Ownership of Kenyan Side	0.5.1 Do you think that the Kenyan counterparts (CPs) have taken more initiative in the Project than before the 2007 Mid-term Evaluation Mission?		1	7	4				3.3
0.6 Collaboration with Other Stakeholders	0.6.1 Do you think that the Municipal Council of Nakuru (MCN) has provided appropriate and adequate assistance and advice for the smooth project implementation?		2	7	3				3.1
	0.6.2 Do you think that the Nakuru Water and Sanitation Services, Co. Ltd. (NAWASSCO) has actively collaborated with the NEMP in the project implementation? If there is any problem, what is it?		1	3	7	1			3.5
	0.6.3 Do you think that the Kenya Wildlife Services (KWS) has actively collaborated with the NEMP in the project implementation? If there is any problem, what is it?		1	3	7	1			3.5
	0.6.4 Do you think that the collaboration among MCN, NAWASSCO and KWS has been well functioning since the conclusion of the MOU of April, 2007? If there is any problem, what is it?			3	8	1			3.7

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
	0.6.5 Do you think that the National Environment Management Authority (NEMA) has provided appropriate and adequate assistance to the NEMP in the project implementation? If there is any problem, what is it?		2	9	1				2.9
	0.6.6 Do you think that NEMP has effectively collaborated with other donor agencies, governmental agencies and/or NGOs assisting the environment management of the Lake Nakuru watershed region?			4	8				3.7
	0.6.7 If so, please state any example. If not, what were the problems?								
0.7 Others	0.7.1 Was there any other problem arisen in the process of the project implementation? If so, what is it and how did you deal with it?	Yes	No			4	8		

2.Effectiveness

Questions	Sub-Questions	1	2	3	4	0	Yes	No	Average
2.1 Achievement of Project Purpose	2.1.1 How has the monitoring data collected by Water Quality Testing Laboratory (WQTL) been utilized? How do you think the data should be utilized in the future?								
	2.1.2 How have the manuals and database prepared by the Project been utilized? How do you think they should be utilized in the future?								
	2.1.3 Do you think that MCN is taking a leading role among various actors to promote the local environmental activities? Why do/don't you think so?	1	3	6	2				2.8
	2.1.4 What do you think should be done more to improve the environmental management capacity of the concerned agencies?								
2.2 Achievement of Outputs	2.2.1 Provided that the expected level of achievement is 100%, how much is the current level of the achievement of CPs in MCN to carry out their assignments? If they have any problem, what is it?	2	5	5					2.3
	2.2.2 Provided that the expected level of achievement is 100%, how much is the current level of the achievement of WQTL staff to undertake their assignments? If they have any problem, what is it?			9	2	1			3.2
	2.2.3 Provided that the expected level of achievement is 100%, how much is the current level of the achievement of KWS/LNNP staff to undertake their assignments? If they have problems, what are they?		3	6	1	2			2.8
	2.2.4 Provided that the expected level of achievement is 100%, how reliable do you think the data analyzed by WQTL is? If there is any problem, what is it?		1	7	4				3.3
	2.2.5 What training and workshops organized by the Project did you participate?								
	2.2.6 Do you think the training and workshops you listed above greatly contributed to the enhancement of your technical capability? If not, what were the problems?			1	9	2			3.9

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
	2.2.7 Do you think that the Nakuru Business Association is more collaborative with MCN in the pollution control than before the implementation of the Project? Why do/don't you think so?		1	6	1	4			3
	2.2.8 Do you think that your technical capacity has been fully developed to undertake your assignment properly?	1		5	4	2			3.2
	2.2.9 If not, what are the problems? What do you think you could do to address the problems before the termination of the Project?								
2.3 Important Assumption	2.3.1 Do you think that there was any influence of important assumption (Lead organizations maintain their cooperation to the Project) taken place after the Mid-term Evaluation of Feb. 2007 in achieving the Project Purpose and the Outputs? If yes, what was it?					8	2	2	
2.4 Others	2.4.1 Do you think that there was any factor to contribute to or impede the smooth implementation of the Project?					6	3	3	

3.Efficiency

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
	---> > These apply to the questions between 3.1.1 and 3.3.1.	Not at all	Rarely	More or less	Very much				
3.1 Appropriateness of Japanese Inputs	3.1.1 Appropriateness of Japanese Long term experts	a. The number of experts			4	5	3		3.6
		b. Timeliness of dispatching experts			5	4	3		3.4
		c. Fields of expertise			5	5	2		3.5
	3.1.2 Appropriateness of Japanese Short term experts	a. The number of experts			3	6	3		3.7
		b. Timeliness of dispatching experts			4	5	3		3.6
		c. Duration of assignments			8	1	3		3.1
		d. Fields of expertise			3	6	3		3.7
	3.1.3 Appropriateness of Training / Workshops conducted by the Japanese experts	a. relevance of training to needs of CPs			6	4	2		3.4
		b. practicality of training			4	6	2		3.6
		c. frequency of training		1	8	1	2		3
	3.1.4 Appropriateness of CP training in Japan (This question is for those participated in the CP training.)	a. The number of trainees			1	5			3.8
		b. Timeliness			1	5			3.8
		c. Fields of training		1		5			3.7
	3.1.5 Appropriateness of provision of facility and equipment	a. Quantity			1	8	3		3.9
		b. Quality				9	3		4
c. Timeliness of provision					9	3		4	
d. Type / kinds of equipment				1	7	4		3.9	
3.1.6 Appropriateness of local cost support	a. Timeliness		2	2	5	3		3.3	
	b. Amount of support		2	2	5	3		3.3	

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
3.2 Appropriateness of Kenyan inputs	3.2.1 Appropriateness of assignment of CPs/Staff	a. The number of CPs/Staff		3	5	3	1		3.3
		b. Timeliness of assignment		3	4	4	1		3.1
		c. Expertise of CPs/Staff		2	7	2	1		3.3
	3.2.2 Appropriateness of provision of facilities / equipment	a. Facilities (Project office)		2	2	7	1		3.5
		b. Equipment and supplies		3	3	5	1		3.2
	3.2.3 Appropriateness of operational costs	a. Amount		3	5	3	1		3.3
b. Timeliness of disbursement			2	6	3	1		3.1	
3.3 Utilization of Inputs	3.3.1 Appropriateness of utilization of inputs	a. Personnel		2	4	4	2		3.2
		b. Facilities/equipment/supplies		2	2	6	2		3.4
		c. Operational Costs		2	2	6	2		3.4
3.4 Inputs in General	3.4.1 Please write your comments on the overall appropriateness of inputs of both Japanese and Kenya and their usage.								
3.5 Project Management	3.5.1 Please list the meetings (e.g. Management Committee, Weekly Meeting, etc.) which you regularly attend and state their frequency and objectives.								
	3.5.2 Do you think that the Project has been effectively managed? If no, what were the problems?			1	11				3.9

4. Impact

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
4.2 Positive Impact	4.2.1 Is there any positive impact produced by the Project?								
4.3 Negative Impact	4.3.1 Is there any negative impact produced by the Project?								

5. Sustainability

Questions	Sub-questions	1	2	3	4	0	Yes	No	Average
5.3 Technical Sustainability	5.3.1 Do you think that you are able to properly undertake the operation and maintenance of the equipment without any difficulties?	1	1	4		6			2.5

Thank you for your cooperation

EVALUATION QUESTIONNAIRE for Management

Project Title : Improvement of Environmental Management Capacity in Nakuru Municipality and the Surrounding Areas (NEMP)

Name:

Position / Organization

Period of assignment :

Concerned Expert:

No. of respondents: 2

1: Not at all 2: Rarely 3: More or less 4: Very much 0: No answer

0. Implementation Process

Questions	Sub-questions	1	2	3	4	0	Yes	No
0.1 Implementation of Activities	0.1.1 Have the Project activities been carried out as planned ?			2				
	0.1.2 If it was not, what were the problems?							
	0.1.3 How did you cope with the problems?							
0.2 Technical Transfer	0.2.1 Do you think the Japanese experts have sufficiently supported your staff to enhance their technical capability?			1	1			
0.3 Monitoring	0.3.1 Did the Project modify the monitoring system (methodologies, frequencies, etc) after the 2007 Mid-term Evaluation Mission? If so, how?					1	1	
	0.3.2 The Project has not included any quantifiable indicators in its PDM. Against what have you assessed the progress of the activities undertaken?							
	0.3.3 Do you think that the PDM/PO are the effective monitoring tools? If so, please explain how it is effective. If not, also please explain how it is not effective.				1	1		
0.4 Communication between Kenyan CP and Japanese Experts	0.4.1 Do you think that you have had a good communication with the Japanese experts?				2			
	0.4.2 If not, what were the problems and how did you cope with them?							
0.5 Ownership of Kenyan Side	0.5.1 Do you think that your staff have taken more initiative in the Project than before the 2007 Mid-term Evaluation Mission?			1		1		
	0.6.1 Do you think that the Municipal Council of Nakuru (MCN) has provided appropriate and adequate assistance and advice for the smooth project implementation?			1	1			

Questions	Sub-questions	1	2	3	4	0	Yes	No
0.6 Collaboration with Other Stakeholders	0.6.2 Do you think that the Nakuru Water and Sanitation Services, Co. Ltd. (NAWASSCO) has actively collaborated with the NEMP in the project implementation? If there is any problem, what is it?			1	1			
	0.6.3 Do you think that the Kenya Wildlife Services (KWS) has actively collaborated with the NEMP in the project implementation? If there is any problem, what is it?			1	1			
	0.6.4 Do you think that the collaboration among MCN, NAWASSCO and KWS has been well functioning since the conclusion of MOU in April 2007? If there is any problem, what is it?					2		
	0.6.5 Do you think that the National Environment Management Authority (NEMA) has provided appropriate and adequate assistance to the NEMP in the project implementation? If there is any problem, what is it?		1	1				
	0.6.6 Do you think that NEMP has effectively collaborated with other donor agencies, governmental agencies and/or NGOs assisting the environment management of the Lake Nakuru watershed region?				1	1		
	0.6.7 If so, please state any example. If not, what were the problems?							
0.7 Others	0.7.1 Was there any other problem arisen in the process of the project implementation? If so, what is it and how did you deal with it?						2	

2. Effectiveness

Questions	Sub-Questions	1	2	3	4	0	Yes	No	
2.1 Achievement of Project Purpose	2.1.1 How has the monitoring data collected/analyzed by Water Quality Testing Laboratory (WQTL) been utilized? How do you think the data should be utilized in the future?								
	2.1.2 How have the manuals and database prepared by the Project been utilized? How do you think they should be utilized in the future?								
	2.1.3 Do you think that MCN is taking a leading role among various actors to promote the local environmental activities? Why do/don't you think so?				2				
	2.1.4 What do you think should be done more to improve the environmental management capacity of concerned agencies?								
	2.2.1 Provided that the expected level of achievement is 100%, how much is the current level of the achievement of CPs in MCN to carry out their assignments? If they have any problem, what is it?			2					

Questions	Sub-questions	1	2	3	4	0	Yes	No
2.2 Achievement of Outputs	2.2.2 Provided that the expected level of achievement is 100%, how much is the current level of the achievement of the WQTL staff to undertake their assignments? If they have any problem, what is it?			1	1			
	2.2.3 Provided that the expected level of achievement is 100%, how much is the current level of the achievement of KWS/LNNP staff to undertake their assignments? If they have problems, what are they?			2				
	2.2.4 Provided that the expected level of achievement is 100%, how reliable do you think the data analyzed by WQTL is? If there is any problem, what is it?			2				
	2.2.5 Do you think that the training and workshops organized by the Project have greatly contributed to the enhancement of the technical capability of your staff?				2			
	2.2.6 Do you think that the sufficient number of the environment management tools have been developed by the Project for MCN to effectively administer its environment policy? If not, what more tools need to be developed?					2		
	2.2.7 Do you think that the Nakuru Business Association is more collaborative with MCN in the pollution control than before the implementation of the Project? Why do/don't you think so?			1	1			
	2.2.8 Do you think that relevant stakeholders including MCN, NAWASSCO and KWS are highly determined to work together for the environment management of the Lake Nakuru watershed region?					2		
	2.2.9 What institute do you think should be responsible for the administration of the GIS database developed for the environmental management of the Lake Nakuru watershed region (under Output 3) in the future and how do you think it should be utilized?							
	2.2.10 What do you think is promoting the capacity development of your staff?							
	2.2.11 What do you think is hampering the capacity development of your staff?							
2.3 Important Assumption	2.3.1 Do you think that there was any influence of important assumption (Lead organizations maintain their cooperation to the Project) taken place after the Mid-term Evaluation of Feb. 2007 in achieving the Project Purpose and the Outputs? If yes, what was it?					1	1	
2.4 Others	2.4.1 Do you think that there was any factor to contribute to or impede the smooth implementation of the Project?						2	

3.Efficiency

Questions	Sub-questions	1	2	3	4	0	Yes	No
---> > These apply to the questions between 3.1.1 and 3.3.1.								
3.1.1 Appropriateness of Japanese Long term experts	a. The number of experts				2			
	b. Timeliness of dispatching experts			1	1			
	c. Fields of expertise				2			

Questions	Sub-questions	1	2	3	4	0	Yes	No
3.1 Appropriateness of Japanese Inputs	3.1.2 Appropriateness of Japanese Short-term experts	a. The number of experts			1	1		
		b. Timeliness of dispatching experts	1		1			
		c. Duration of assignments	1		1			
		d. Fields of expertise		1		1		
	3.1.3 Appropriateness of training / Workshops conducted by the Japanese experts	a. relevance of training to needs of CPs			2			
		b. practicality of training	1			1		
		c. frequency of training			2			
	3.1.4 Appropriateness of CP training in Japan	a. The number of trainees			1	1		
		b. Timeliness			1	1		
		c. Fields of training			1	1		
	3.1.5 Appropriateness of provision of facility and equipment	a. Quantity			1	1		
		b. Quality			1	1		
		c. Timeliness of provision			1	1		
		d. Type / kinds of equipment			1	1		
3.1.6 Appropriateness of local cost support	a. Timeliness			1	1			
	b. Amount of support			1	1			
3.2 Appropriateness of Kenyan inputs	3.2.1 Appropriateness of assignment of CPs/staff	a. The number of CPs/staff		1	1			
		b. Timeliness of assignment		1	1			
		c. Expertise of CPs/staff		1	1			
	3.2.2 Appropriateness of provision of facilities / equipment	a. Facilities (Project office)			1		1	
		b. Equipment and supplies		1			1	
	3.2.3 Appropriateness of operational costs	a. Amount			1		1	
b. Timeliness of disbursement					1	1		
3.3 Utilization of Inputs	3.3.1 Appropriateness of utilization of Inputs	a. Personnel			1		1	
		b. Facilities/equipment/supplies			1		1	
		c. Operational Costs				1	1	
3.4 Inputs in General	3.4.1 Please write your comments on the overall appropriateness of inputs of both Japanese and Kenya and their usage.							
3.5 Project Management	3.5.1 Please list the meetings (e.g. Tripartite Coordination Meeting, etc.) which you regularly attend and state their frequency and objectives.							
	3.5.2 Do you think that the Project has been effectively managed? If no, what were the problems?				2			

4. Impact

Questions	Sub-questions	1	2	3	4	0	Yes	No
	Overall Goal - To improve environmental management in the Lake Nakuru Watershed Region							

Questions	Sub-questions	1	2	3	4	0	Yes	No
4.1 Impact on overall goal	4.1.1 Do you think that the Overall Goal is likely to be achieved? If yes, why do you think so? If no, what will be a problem?			1	1			
	4.1.2 What could hamper the achievement of the Overall Goal?							
4.2 Positive Impact	4.2.1 Is there any positive impact produced by the Project?							
4.3 Negative Impact	4.3.1 Is there any negative impact produced by the Project?							

5.Sustainability

Questions	Sub-questions	1	2	3	4	0	Yes	No
5.1 Institutional Sustainability	5.1.1 Is your organization (MCN, NAWASSCO, or KWS) likely to continuously work on the water quality control in the Lake Nakuru watershed region after the completion of the Project? Why do/don't you think so?				2			
	5.1.2 Do you think that MCN is likely to take a lead in the environment management in the Nakuru municipality after the completion of the Project? Why do/don't you think so?				2			
	5.1.3 Is your organization (MCN, NAWASSCO or KWS) likely to continue collaborating with the other two organizations as stipulated in the 2007 MOU after the completion of the Project? Why do/don't you think so?				2			
	5.1.4 Do you think that MCN is likely to continuously collaborate with concerned agencies such as NGO, door agencies, etc. on the environmental management in the Nakuru municipality? Why do/don't you think so?			1	1			
5.2 Financial Sustainability	5.2.1 Is your organization (MCN, NAWASSCO or KWS) likely to continue allocating sufficient operational budget to sustain/expand the present activities including the budget for the maintenance of equipment?			1	1			
5.3 Technical Sustainability	5.3.1 Do you think the level of technical capacity of your staff is sufficient to sustain/expand the present activities?			2				
	5.3.2 Do you think that the transferred technologies are likely to be utilized continuously in your organization after the completion of the Project?				2			
	5.3.3 Do you think that the facilities and equipment will be properly maintained by your staff after the Project completion?				2			

Questions	Sub-questions	1	2	3	4	0	Yes	No
5.4 Important factors for sustainability	5.4.1 What will be the promoting factors to sustain the project impact after the termination of the Project?							
	5.4.2 What will be the inhibiting factors against the project impact to be sustained after the termination of the Project?							

Thank you for your cooperation

**ナクル地域における環境管理能力向上プロジェクト終了時評価
質問票**

専門家氏名:

担当業務:

任期:

回答者数: 7

0. 実施プロセス

1: 全くそう思わない 2: あまりそう思わない 3: ほぼそう思う 4: 大変そう思う (N/A: 無回答)

大質問	小質問	1	2	3	4	その他
0.1 活動実施状況	0.1.1 活動は計画通りに進捗しましたか。		2	5		
	0.1.2 進捗しなかった場合、計画と乖離した理由をお答えください。					
	0.1.3 それらの問題にどのように対処されましたか、あるいは対処されていますか。					
0.2 技術移転	0.2.1 技術移転の方法に関して、どんな問題があり、それに対してどんな工夫をされていますか。					
0.3 モニタリング	0.3.1 2007年の中間評価調査以後、プロジェクト活動の進捗状況確認のためのモニタリングの方法や頻度等を変更しましたか。変更された場合、どのような点を変更しましたか。	はい	いいえ			無回答: 2
	0.3.2 プロジェクトのPDMの指標には数値設定はなされていませんが、ご自身の担当業務に関するモニタリングで、達成度の目安とされていた指標にはどのようなものがありますか。活動とその指標を簡単にお答えください。					
	0.3.3 PDM/POIはモニタリング・ツールとして有効だと思いますか？有効だと思う(思わない)理由をお答えください。		2	5		
0.4 ケニア人CPと日本人専門家との関係	0.4.1 CPや連携機関職員とのコミュニケーションは適切に行われたと思いますか。			5	1	その他(2&3): 1
	0.4.2 もし、適切でなかった場合、何が問題であり、どのように対処されましたか。					
0.5 ケニア側のオーナーシップ	0.5.1 2007年の中間評価調査以降、ケニア側のプロジェクトに対するオーナーシップは向上したと思いますか。向上したと思われる場合はその事を示す例を、また何か問題点があると思われる場合は、それについてお書きください。	1	2	3		無回答: 1
0.6 関係機関との関係	0.6.1 JICAケニア事務所とのコミュニケーションは適切に行われたと思いますか。改善した方が良い点があれば、お書きください。			6	1	
	0.6.2 プロジェクトは、その円滑な実施のために、MCNから必要な支援や助言を得られたと思いますか。問題点があればお書きください。		5			無回答: 2
	0.6.3 プロジェクトはNAWASSCOから十分な協力が得られたと思いますか。問題点があればお書きください。		1	4	2	
	0.6.4 プロジェクトは、KWSから十分な協力が得られたと思いますか。問題点があればお書きください。		2	3	1	無回答: 1
	0.6.5 2007年4月の合意書締結以来、MCN、NAWASSCO/WQT、LKWS/LNPN間の協調体制はうまく機能していると思いますか。問題点があればお書きください。		3	2	1	無回答: 1

大質問	小質問	1	2	3	4	その他
	0.6.6 プロジェクトは、NEMAから十分な協力が得られたと思いますか。問題点があればお書きください。	1	3	1		無回答：2
	0.6.7 プロジェクトは、ナクル湖流域環境管理を支援する他のドナー機関、政府機関、またはNGOとの連携を効果的に行ってきたとお考えですか。			5	1	無回答：1
	0.6.8 効果的な連携ができたとお考えの場合、それを示す事例をご説明ください。また、もし、出来なかったとお考えの場合、どのような点に問題があったと思われるか。					
0.7 その他	0.7.1 プロジェクト実施過程で生じた問題がありましたか？もし、あった場合、どのように対処されましたか。					

1.妥当性

大質問	小質問	1	2	3	4	理由/コメント
1.1 手段の適切性	1.1.1 本プロジェクトの実施は、ナクル市の水分野の環境管理能力向上のための適切な支援戦略だと思いますか。			4	2	無回答：1
	1.1.2 日本の技術の優位性が十分に活かされていると思いますか。もし、活かされているお考えの場合はどのような点で活かされていると思われますか。もし、活かされていないとお考えの場合、どのような点が問題ですか。		1	5		その他(2&3)：1

2.有効性

大質問	小質問	1	2	3	4	理由/コメント
2.1 プロジェクト目標達成度	2.1.1 WQTLにより収集されている水質モニタリングデータは現在どのように活用されていますか。また、今後どのように活用されていくべきとお考えですか。					
	2.1.2 プロジェクトにより作成された各種マニュアル及びデータベース等の環境管理ツールは、現在どのように活用されていますか。また今後どのように活用されていくべきとお考えですか。					
	2.1.3 ナクル市は、現在、地域の環境活動推進のためのイニシアチブを十分に発揮していると思いますか。そう思われる(思われない)理由も併せてお書きください。		1	5		無回答：1
	2.1.4 ナクル市の水分野を中心とした環境管理能力の一層の向上のためには、何が必要だとお考えですか。					
	2.2.1 達成目標を100%とした場合、MCNのCPIは担当している業務をどの程度適切に遂行できますか。もし100%に満たない場合、今後の課題は何ですか。	2	3			無回答：2
	2.2.2 達成目標を100%とした場合、WQTLの担当職員は担当している業務をどの程度適切に遂行できますか。もし100%に満たない場合、今後の課題は何ですか。			6		無回答：1
	2.2.3 達成目標を100%とした場合、KWS/LNNP調査課員は担当している業務をどの程度適切に遂行できますか。もし100%に満たない場合、今後の課題は何ですか。			2	1	無回答：4
	2.2.4 達成目標を100%とした場合、WQTLによる分析データの信頼度はどの程度ですか。もし、100%に満たない場合、今後の課題は何ですか。			5		無回答：2
	2.2.5 ナクル市が水分野における適切な環境政策を推進していくために必要な、十分な数の環境管理ツールが開発されたと思いますか。もし、更なるツールが必要とお考えの場合、それはどのようなツールですか。		2	3		その他(2&3)：1/無回答：1

大質問	小質問	1	2	3	4	その他
2.2 アウトプットの達成度	2.2.6 MCN/PCSによる工場査察の実施やプロジェクトによるワークショップ等の実施により、ナクル企業連合の環境に対する意識は高まってきたと思いますか。そう思われる（思われない）理由も併せてお書きください。			6		無回答：1
	2.2.7 MCN、NAWASSCO、KWS及び他の主要関係機関は、ナクル湖集水流域環境管理活動における協働体制構築に積極的だと思えますか。			6		無回答：1
	2.2.8 ナクル湖集水流域管理のために開発されたGISデータベースは、今後、どの機関によって管理され、どのように活用されるべきだと思いますか。					
	2.2.9 MCN、NAWASSCO/WQTL及びKWS/LNNPの各職員のキャパシティ開発を促進していることは何ですか。					
	2.2.10 MCN、NAWASSCO/WQTL及びKWS/LNNPの各職員のキャパシティ開発を阻害していることは何ですか。					
	2.2.11 ご自身が担当されている業務分野で、アウトプットの達成を促進していることは何ですか。					
	2.2.12 ご自身が担当されている業務分野で、アウトプットの達成を阻害していることは何ですか。					
2.3 外部条件	2.3.1 外部条件の影響によりプロジェクトの進捗が阻害されたことがありますか。もし、あればそれは何ですか。					
2.4 その他	2.4.1 外部条件以外で、プロジェクトの進捗を促進、または阻害した要因がありますか。もし、あればそれは何ですか。					無回答：1

3. 効率性

大質問	小質問	1	2	3	4	理由/コメント	
----> > 3.1.1から3.3.1に関しては、こちらの選択肢に沿ってお答えください。		全くそう 思わない	あまりで う思わな い	ほぼそう 思う	大変そう 思う		
3.1 日本側投入の適切性	3.1.1 長期専門家の派遣の適切性	a. 派遣専門家数		2	4		無回答：1
		b. 派遣のタイミング		2	4		無回答：1
		c. 派遣分野		4	2		無回答：1
	3.1.2 短期専門家の派遣の適切性	a. 派遣専門家数			6		無回答：1
		b. 派遣のタイミング			5		無回答：2
		c. 派遣期間		1	5		無回答：1
		d. 派遣分野			6		無回答：1
	3.1.3 日本人専門家によって実施された研修・ワークショップの適切性	a. ケニア側のニーズとの整合性		1	5		無回答：1
		b. 内容の実用性			6		無回答：1
		c. 頻度			6		無回答：1
	3.1.4 日本でのカウンターパート研修の適切性	a. 参加したCP数		2	3		無回答：2
		b. タイミング	1	2	2		無回答：2
		c. 研修分野		1	4		無回答：2
	3.1.5 供与機材の適切性	a. 数量		1	4		無回答：2
		b. 品質		1	4		無回答：2
		c. 供与のタイミング			5		無回答：2
d. 種類・仕様			1	4		無回答：2	
3.1.6 ローカルコストの適切性	a. 支給のタイミング			3		無回答：4	
	b. 支給額			3		無回答：4	

大質問	小質問	1	2	3	4	その他	
3.2 ケニア側投入の適切性	3.2.1 CP/担当職員の配置の適切性	a. CP/担当職員数	2	5			
		b. タイミング	2	4	1		
		c. 専門分野	2	4	1		
	3.2.2 提供施設・機材の適切性	a. 施設			2	2	無回答：3
		b. 機材	1	1	2		無回答：3
	3.2.3 プロジェクト運営費の適切性	a. 負担額	1	3			無回答：3
b. 執行のタイミング		1	3			無回答：3	
3.3 投入の効果的活用	3.3.1 投入の活用の適切性	a. 人材			5		無回答：2
		b. 施設・機材	1		3	1	無回答：2
		c. 運営費		3	2		無回答：2
3.4 投入全般	3.4.1 日本側・ケニア側の投入の適切性や活用方法などについて、ご意見があれば、お書きください。						
3.5 運営管理体制	3.5.1 プロジェクトでは各種会議が実施されていますが、定期的に参加されている会議の名称（例：月例調整会議等）について、お書きの上、それぞれの頻度、及び目的（協議内容）をお答えください。						
	3.5.2 プロジェクトの運営管理体制は適切であったと思われますか。改善したほうが良いとお考えの点があればお書きください。		2	4		無回答：1	

4. インパクト

大質問	小質問	1	2	3	4	理由/コメント
4.1 上位目標達成の見込み	4.1.1 上位目標達成の見込みはあると思われますか。そう思われる（思われぬ）理由をお答えください。			4		その他(2&3)：2/無回答：1
	4.1.2 上位目標の達成を促進、あるいは阻害するような要因があれば、それは何ですか。					
4.2 プラスのインパクト	4.2.1 プロジェクト実施によるプラスのインパクトはありますか。					
4.3 マイナスのインパクト	4.3.1 プロジェクト実施によるマイナスのインパクトはありますか。					

5. 自立発展性

大質問	小質問	1	2	3	4	理由/コメント
5.1 制度/政策・組織能力面	5.1.1 ケニア政府は、今後も環境保全を重要な政策課題の一つとして取り組んでいくと思いますか。			6	1	
	5.1.2 MCN、NAWASSCO及びKWSはナクル地域における水分野の環境保全に今後も注力していくと思いますか。そう思われる（思われぬ）理由も併せてお書きください。			7		
	5.1.3 MCNは、今後も、ナクル市内の環境保全に取り組む組織・団体をまとめて、その活動にリーダーシップを発揮していくと思いますか。そう思われる（思われぬ）理由も併せてお書きください。		2	5		
	5.1.4 MCN、NAWASSCO及びKWSは、プロジェクト終了後も、2007年4月に締結された合意文書に則って、協力体制を維持・発展できると思いますか。そう思われる（思われぬ）理由も併せてお書きください。		1	5		無回答：1

大質問	小質問	1	2	3	4	その他
	5.1.5 MCNはプロジェクト終了後も、NGOや他ドナー機関といった関係機関との協力体制を維持・発展できると思いますか。そう思われる(思われない)理由も併せてお書きください。			4	2	無回答：1
5.2 財政面	5.2.1 MCN、NAWASSCO及びKWSは、プロジェクト終了後も機材の維持管理費を含むその活動に必要な予算を十分に確保できると思いますか。	1	4	2		
5.3 技術面	5.3.1 MCN、NAWASSCO及びKWSのCP及び担当職員の技術レベルは、現在の活動を維持発展させていくために充分であると思いますか。		2	4		その他(2&3)：1
	5.3.2 移転された技術は、プロジェクト終了後もMCN、NAWASSCO及びKWSの各組織内に継続・定着していくと思いますか。		1	5		無回答：1
	5.3.3 資機材の維持管理はCP/担当職員が単独で実施できると思いますか。		2	5		
5.4 貢献・阻害要因	5.4.1 MCN、NAWASSCO及びKWS各機関の自立発展性を促進すると考えられる要因がありましたら、お書きください。					
	5.4.2 MCN、NAWASSCO及びKWS各機関の自立発展性を阻害すると考えられる要因がありましたら、お書きください。					

ありがとうございました。

**ナクル地域における環境管理能力向上プロジェクト終了時評価
質問票**

専門家氏名:

担当業務:

任期:

回答者数: 7

0. 実施プロセス

1: 全くそう思わない 2: あまりそう思わない 3: ほぼそう思う 4: 大変そう思う (N/A: 無回答)

大質問	小質問	1	2	3	4	その他	はい	いいえ	平均
0.1 活動実施状況	0.1.1 活動は計画通りに進捗しましたか。		2	5					2.7
	0.1.2 進捗しなかった場合、計画と乖離した理由をお答えください。								
	0.1.3 それらの問題にどのように対処されましたか、あるいは対処されていますか。								
0.2 技術移転	0.2.1 技術移転の方法に関して、どんな問題があり、それに対してどんな工夫をされていますか。								
0.3 モニタリング	0.3.1 2007年の中間評価調査以後、プロジェクト活動の進捗状況確認のためのモニタリングの方法や頻度等を変更しましたか。変更された場合、どのような点を変更しましたか。	はい	いいえ			無回答: 2	1	4	
	0.3.2 プロジェクトのPDMの指標には数値設定はなされていませんが、ご自身の担当業務に関するモニタリングで、達成度の目安とされていた指標にはどのようなものがありますか。活動とその指標を簡単にお答えください。								
	0.3.3 PDM/POはモニタリング・ツールとして有効だと思いますか？有効だと思われる(思われない)理由をお答えください。		2	5					2.7
0.4 ケニア人CPと日本人専門家との関係	0.4.1 CPや連携機関職員とのコミュニケーションは適切に行われたと思いますか。			5	1	その他(2&3): 1			3.2
	0.4.2 もし、適切でなかった場合、何が問題であり、どのように対処されましたか。								
0.5 ケニア側のオーナーシップ	0.5.1 2007年の中間評価調査以降、ケニア側のプロジェクトに対するオーナーシップは向上したと思いますか。向上したと思われる場合はその事を示す例を、また何か問題点があると思われる場合は、それについてお書きください。	1	2	3		無回答: 1			3.3
0.6 関係機関との関係	0.6.1 JICAケニア事務所とのコミュニケーションは適切に行われたと思いますか。改善した方が良い点があれば、お書きください。			6	1				
	0.6.2 プロジェクトは、その円滑な実施のために、MCNから必要な支援や助言を得られたと思いますか。問題点があればお書きください。		5				無回答: 2		2
	0.6.3 プロジェクトはNAWASSCOから十分な協力が得られたと思いますか。問題点があればお書きください。		1	4	2				3.1
	0.6.4 プロジェクトは、KWSから十分な協力が得られたと思いますか。問題点があればお書きください。		2	3	1		無回答: 1		2.8
	0.6.5 2007年4月の合意書締結以来、MCN、NAWASSCO/WQT、LKWS/LNPN間の協調体制はうまく機能していると思いますか。問題点があればお書きください。		3	2	1		無回答: 1		2.7

大質問	小質問	1	2	3	4	その他	はい	いいえ	平均
	0.6.6 プロジェクトは、NEMAから十分な協力が得られたと思いますか。問題点があればお書きください。	1	3	1		無回答：2			2
	0.6.7 プロジェクトは、ナクル湖流域環境管理を支援する他のドナー機関、政府機関、またはNGOとの連携を効果的に行ってきたとお考えですか。			5	1	無回答：1			3.2
	0.6.8 効果的な連携ができたとお考えの場合、それを示す事例をご説明ください。また、もし、出来なかったとお考えの場合、どのような点に問題があったと思われるか。								
0.7 その他	0.7.1 プロジェクト実施過程で生じた問題がありましたか？もし、あった場合、どのように対処されましたか。								

1.妥当性

大質問	小質問	1	2	3	4	理由/コメント	はい	いいえ	平均
1.1 手段の適切性	1.1.1 本プロジェクトの実施は、ナクル市の水分野の環境管理能力向上のための適切な支援戦略だと思いますか。			4	2	無回答：1			3.3
	1.1.2 日本の技術の優位性が十分に活かされていると思いますか。もし、活かされているお考えの場合はどのような点で活かされていると思われるか。もし、活かされていないとお考えの場合、どのような点が問題ですか。		1	5		その他(2&3)：1			2.8

2.有効性

大質問	小質問	1	2	3	4	理由/コメント	はい	いいえ	平均
2.1 プロジェクト目標達成度	2.1.1 WQTLにより収集されている水質モニタリングデータは現在どのように活用されていますか。また、今後どのように活用されていくべきとお考えですか。								
	2.1.2 プロジェクトにより作成された各種マニュアル及びデータベース等の環境管理ツールは、現在どのように活用されていますか。また今後どのように活用されていくべきとお考えですか。								
	2.1.3 ナクル市は、現在、地域の環境活動推進のためのイニシアチブを十分に発揮していると思いますか。そう思われる(思われない)理由も併せてお書きください。		1	5		無回答：1			2.8
	2.1.4 ナクル市の水分野を中心とした環境管理能力の一層の向上のためには、何が必要だとお考えですか。								
	2.2.1 達成目標を100%とした場合、MCNのCPは担当している業務をどの程度適切に遂行できますか。もし100%に満たない場合、今後の課題は何ですか。	2	3			無回答：2			1.6
	2.2.2 達成目標を100%とした場合、WQTLの担当職員は担当している業務をどの程度適切に遂行できますか。もし100%に満たない場合、今後の課題は何ですか。			6		無回答：1			3
	2.2.3 達成目標を100%とした場合、KWS/LNNP調査課員は担当している業務をどの程度適切に遂行できますか。もし100%に満たない場合、今後の課題は何ですか。			2	1	無回答：4			3.3
	2.2.4 達成目標を100%とした場合、WQTLによる分析データの信頼度はどの程度ですか。もし、100%に満たない場合、今後の課題は何ですか。			5		無回答：2			3
	2.2.5 ナクル市が水分野における適切な環境政策を推進していくために必要な、十分な数の環境管理ツールが開発されたと思いますか。もし、更なるツールが必要とお考えの場合、それはどのようなツールですか。		2	3			その他(2&3)：1/無回答：1		

大質問	小質問	1	2	3	4	その他	はい	いいえ	平均
2.2 アウトプットの達成度	2.2.6 MCN/PCSによる工場査察の実施やプロジェクトによるワークショップ等の実施により、ナクル企業連合の環境に対する意識は高まってきていると思いますか。そう思われる(思われない)理由も併せてお書きください。			6		無回答：1			3
	2.2.7 MCN、NAWASSCO、KWS及び他の主要関係機関は、ナクル湖集水域環境管理活動における協働体制構築に積極的だと思えますか。			6		無回答：1			3
	2.2.8 ナクル湖集水域管理のために開発されたGISデータベースは、今後、どの機関によって管理され、どのように活用されるべきだと思いますか。								
	2.2.9 MCN、NAWASSCO/WQTL及びKWS/LNNPの各職員のキャパシティ開発を促進していることは何ですか。								
	2.2.10 MCN、NAWASSCO/WQTL及びKWS/LNNPの各職員のキャパシティ開発を阻害していることは何ですか。								
	2.2.11 ご自身が担当されている業務分野で、アウトプットの達成を促進していることは何ですか。								
	2.2.12 ご自身が担当されている業務分野で、アウトプットの達成を阻害していることは何ですか。								
2.3 外部条件	2.3.1 外部条件の影響によりプロジェクトの進捗が阻害されたことがありますか。もし、あればそれは何ですか。						6	1	
2.4 その他	2.4.1 外部条件以外で、プロジェクトの進捗を促進、または阻害した要因がありますか。もし、あればそれは何ですか。					無回答：1	5	1	

3.効率性

大質問	小質問	1	2	3	4	理由/コメント	はい	いいえ	平均
---> > 3.1.1から3.3.1に関しては、こちらの選択肢に沿ってお答えください。		全くそう 思わない	あまり 思わない	ほぼそう 思う	大変そう 思う				
3.1 日本側投入の適切性	3.1.1 長期専門家の派遣の適切性	a. 派遣専門家数		2	4		無回答：1		2.7
		b. 派遣のタイミング		2	4		無回答：1		2.7
		c. 派遣分野		4	2		無回答：1		2.3
	3.1.2 短期専門家の派遣の適切性	a. 派遣専門家数			6		無回答：1		3
		b. 派遣のタイミング			5		無回答：2		3
		c. 派遣期間		1	5		無回答：1		2.8
		d. 派遣分野			6		無回答：1		3
	3.1.3 日本人専門家によって実施された研修・ワークショップの適切性	a. ケニア側のニーズとの整合性		1	5		無回答：1		2.8
		b. 内容の実用性			6		無回答：1		3
		c. 頻度			6		無回答：1		3
	3.1.4 日本でのカウンターパート研修の適切性	a. 参加したCP数		2	3		無回答：2		2.6
		b. タイミング	1	2	2		無回答：2		2.2
		c. 研修分野		1	4		無回答：2		2.8
	3.1.5 供与機材の適切性	a. 数量		1	4		無回答：2		2.8
		b. 品質		1	4		無回答：2		2.8
		c. 供与のタイミング			5		無回答：2		3
		d. 種類・仕様		1	4		無回答：2		2.8
	3.1.6 ローカルコストの適切性	a. 支給のタイミング			3		無回答：4		3
b. 支給額				3		無回答：4		3	

大質問	小質問	1	2	3	4	その他	はい	いいえ	平均	
3.2 ケニア側投入の適切性	3.2.1 CP/担当職員の配置の適切性	a. CP/担当職員数	2	5					1.7	
		b. タイミング	2	4	1				1.9	
		c. 専門分野	2	4	1				1.9	
	3.2.2 提供施設・機材の適切性	a. 施設			2	2	無回答：3			3.5
		b. 機材	1	1	2		無回答：3			2.3
	3.2.3 プロジェクト運営費の適切性	a. 負担額	1	3			無回答：3			1.8
b. 執行のタイミング		1	3			無回答：3			1.8	
3.3 投入の効果的活用	3.3.1 投入の活用の適切性	a. 人材			5		無回答：2		3	
		b. 施設・機材	1		3	1	無回答：2		2.8	
		c. 運営費		3	2		無回答：2		2.4	
3.4 投入全般	3.4.1 日本側・ケニア側の投入の適切性や活用方法などについて、ご意見があれば、お書きください。									
3.5 運営管理体制	3.5.1 プロジェクトでは各種会議が実施されていますが、定期的に参加されている会議の名称（例：月例調整会議等）について、お書きの上、それぞれの頻度、及び目的（協議内容）をお答えください。									
	3.5.2 プロジェクトの運営管理体制は適切であったと思われるか。改善したほうが良いとお考えの点があればお書きください。		2	4			無回答：1			

4. インパクト

大質問	小質問	1	2	3	4	理由/コメント	はい	いいえ	平均
4.1 上位目標達成の見込み	4.1.1 上位目標達成の見込みはあると思われますか。そう思われる（思われぬ）理由をお答えください。			4		その他(2&3)：2/無回答：1			3
	4.1.2 上位目標の達成を促進、あるいは阻害するような要因があれば、それは何ですか。								
4.2 プラスのインパクト	4.2.1 プロジェクト実施によるプラスのインパクトはありますか。								
4.3 マイナスのインパクト	4.3.1 プロジェクト実施によるマイナスのインパクトはありますか。								

5. 自立発展性

大質問	小質問	1	2	3	4	理由/コメント	はい	いいえ	平均
5.1 制度/政策・組織能力面	5.1.1 ケニア政府は、今後も環境保全を重要な政策課題の一つとして取り組んでいくと思いますか。			6	1				3.1
	5.1.2 MCN、NAWASSCO及びKWSはナクル地域における水分野の環境保全に今後も注力していくと思いますか。そう思われる（思われぬ）理由も併せてお書きください。			7					3
	5.1.3 MCNIは、今後も、ナクル市内の環境保全に取り組む組織・団体をまとめて、その活動にリーダーシップを発揮していくと思いますか。そう思われる（思われぬ）理由も併せてお書きください。		2	5					2.7
	5.1.4 MCN、NAWASSCO及びKWSは、プロジェクト終了後も、2007年4月に締結された合意文書に則って、協力体制を維持・発展できると思いますか。そう思われる（思われぬ）理由も併せてお書きください。		1	5			無回答：1		2.8

大質問	小質問	1	2	3	4	その他	はい	いいえ	平均
	5.1.5 MCNIはプロジェクト終了後も、NGOや他ドナー機関といった関係機関との協力体制を維持・発展できると思いますか。そう思われる(思われない)理由も併せてお書きください。			4	2	無回答：1			3.3
5.2 財政面	5.2.1 MCN、NAWASSCO及びKWSは、プロジェクト終了後も機材の維持管理費を含むその活動に必要な予算を十分に確保できると思いますか。	1	4	2					2.1
5.3 技術面	5.3.1 MCN、NAWASSCO及びKWSのCP及び担当職員の技術レベルは、現在の活動を維持発展させていくために充分であると思いますか。		2	4		その他(2&3)：1			2.7
	5.3.2 移転された技術は、プロジェクト終了後もMCN、NAWASSCO及びKWSの各組織内に継続・定着していくと思いますか。		1	5		無回答：1			2.8
	5.3.3 資機材の維持管理はCP/担当職員が単独で実施できると思いますか。		2	5					2.7
5.4 貢献・阻害要因	5.4.1 MCN、NAWASSCO及びKWS各機関の自立発展性を促進すると考えられる要因がありましたら、お書きください。								
	5.4.2 MCN、NAWASSCO及びKWS各機関の自立発展性を阻害すると考えられる要因がありましたら、お書きください。								

ありがとうございました。

